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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, JULY 15, 1912.

CANINE PIROPLASMOSIS.—In the first number of the 17th volume of the *Archives of Scientific Biologies,* published by the Imperial Institute of Experimental Medicine at St. Petersburg, Drs. N. N. Navrotsky and P. V. Bebensky have published the results of a series of experiments that they have carried on in dogs, in relation to that disease; and which as a contribution to its study present facts of great interest from various points of view, which were the objects of their experiments; viz.: 1. the clinical appearance of the disease; 2. the condition of the blood and that of the urine; 3. the anatomo-pathologic lesions, and, finally, 4. the study of the virus.

I will briefly consider the principal points of the first part of their studies, on account of its special interest from the practical point of view, viz.: *The Clinical aspect.*

This varies according to the type of the disease, which may be acute, sub-acute or chronic.

The acute form can be divided, as presenting four stages, the first of which may be called that of *incubation,* and lasts ordinarily between two and five days, although it may also vary according to the susceptibility of the animals. In this stage there is general dullness, flaccidity of the muscles, diminution of appetite and thirst. The second stage begins with the elevation of

the temperature and the appearance of the pirosmoses in the blood. It lasts between two and four days. The temperature sometimes goes as high as 41° C. This and the presence of the parasites, with an acceleration of the pulse, even to 140 per minute, rapid jerky respiration, loss of flesh, anæmic mucous membranes, constitute the manifestations of this second stage which is characterized as belonging to piroplasmosis, only by the presence of the parasites.

The third stage, which is that of the acme of the disease, lasts from two to four days. In the animals experimented upon, the temperature dropped to normal or even becomes sub-normal. The respiration is accelerated, cardiac palpitations are very strong, the animal is very weak, unable to stand up, the coat is rough, the tongue dry and saburral. The urine is scarce, dark and muddy. There is rhinorrhea and abundant fœtid diarrhœa. The conjunctiva is congested and icteric. There is sometimes abundant flow of tears at the eyes. The fecal matters are liquid, yellow and very fetid. The blood contains piroplasms in about the same quantity as in the second stage.

The duration of the fourth stage varies and depends on the form of the disease. It is characterized by the following symptoms: Dropping of the temperature (36-34° C.), weak pulse, 50-40, deep laborious breathing. Cardiac beatings weak. Great weakness of the animal. Eyes dull, dirty with purulent crusts at the angles, mucous membranes are more or less icteric in color. Greenish discharge escapes from the nose. Thick bloody mucus from the mouth. Feces are liquid, fetid and reddish. Urine, which gradually diminishes until anuria is present, changes coloration from yellow to that of dark brown beer. Feces and nasal discharge become bloody and finally death takes place, after an illness of from five to eight days.

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The picture just described, of the dogs used in experiments, is the form of the natural disease; it is the most characteristic and is called acute because of the severity of the symptoms, of the

ordinary mode of development of the various stages and also because of the rapidity with which the affection progresses.

But if invariably this acute form of canine piroplasmosis ends in death, there are besides two other forms, which the Russian experimenters call sub-acute and chronic.

The characteristic of the first is its atypic progress. The dogs present an identical picture as far as the march of the disease, but survive to the fourth period and seem to return entirely to complete health. Then after a length of time varying between two and ten days, relapse takes place with the symptoms of the second stage, in which the hyperthermy and the presence of the piroplasms in the blood form the principal signs. The other manifestations are less marked. The relapse may end in death or again be followed by a second or a third, when, although the symptoms become less and less marked, fatal termination is nevertheless the result. The average duration of each of these relapses varies between three and four days.

In chronic piroplasmose, the various stages are better defined than in the acute form. The duration of the febrile stage is short in the second and longer in the third stage. In the fourth stage, while the symptoms are as violent as in the acute form, death does not take place and the animal, gradually recovering, may survive. Later the animal affected with chronic piroplasmosis presents a series of exacerbation, separated from each other by periods of rest more or less distinct.

Of all these recidive manifestations the first is generally the most serious. The others have reduced symptoms; finally they also disappear and the animal seems to return to its normal condition. The parasites are found in the blood of the two or three first relapses, but always in reduced number.

The absence of recidive is no proof of a perfect recovery of the animal. The blood of chronic cases which had not had any recidive for several successive months, has given positive results when injected in other animals.

The difference which exists between these two last forms of piroplasmosis is principally in the greater number of access and

in the fact that chronic subjects recover, *clinically* speaking, and may survive more than one year and a half in the Russian experiments.

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In connection with the above clinical demonstration, I find in the *Revue Générale* an article from Mr. Naudin, who has had a very large opportunity of observing canine piroplasmosis, which was confirmed in the diagnosis by the microscopic examination of the blood. Interesting remarks are published from these observations concerning the symptoms, the diagnosis and the treatment.

The hyperthermy and the hemoglobinuria, according to the writer, are not always present, although when there is jaundice the hemoglobinuria is generally always the rule. There is an abnormal sensibility of the spleen, on pressure in the left hypochondriac region. In all the cases then, the urine contains albumin. For Navrotsky and Bebensky, albumin, sugar and blood are absent from the urine in the first stage of the disease. But afterwards albumin is always present.

As complications, Naudin mentions ulcerative stomatitis and gangrene of the tongue. When the diagnosis is uncertain because of the absence of ticks on the dog or because hemoglobinuria being absent, three symptoms which are constant, help to make a diagnosis, viz.: the pale color of the mucus, the splenic soreness and albuminuria. Microscopic examination of the blood confirms it.

As treatment after having tried with more or less success all the classical forms of massive injections of salted water, calomel, arsenic, iodo-iodurated solution, etc., calcium chloride was resorted to, in doses of 3 gramms daily, until the albumin has disappeared from the urine. The diuretic action of the chloride seemed to give excellent results.

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Fumes of Iodine in Local Therapeuty. *La Presse Medicale* has lately called the attention of its readers to the im-

portant demonstration made by a celebrated surgeon, Dr. P. Louge, in the use of vapors of iodine in local therapeuty, which he describes under the qualification of *"Enfumage iode"* and which consists in the local application of the fumes of iodine, at the time of their formation, *fumes which are obtained instantaneously by the simple heating of iodoform powder of good quality.*

Round the end of a directory a small ball of wadding is rolled moderately snug and dipped into iodoform powder. With a match, or any other light, the wadding is lighted and in a few moments, while it burns, a thick cloud of handsome vapors, purple-amethyst color, rolled upwards. They are rising vapors of iodine mixed with a small quantity of iohydric acid, fine penetrating, active and powerfully bactericid, which can be applied on any part of the body with a therapeutic object. These fumes first rise in the air, but in cooling off, they soon drop, become brown-purplish in color and are deposited as small crystals, real sublimation of the iodine. The vapors thus produced in great quantity have the inconvenience of giving rise to strong, acrid odor and of acting on steel and nickeled objects which then are quickly injured.

The use of the little wadding pad is the simplest manner to produce the vapors. But the *"enfumage iode"* can be employed in other ways, the *"external,"* which answers for the surface of the body; the *"internal"* is applied for cysts, abscesses, etc., and a third indication for "cavities," the vagina or fistulous tracts.

There are several manners described by Dr. Louge besides the one mentioned, the burning of a ball of wadding covered with iodoform, held with a directory or pair of forceps.

Again the vapors can be produced in a glass jar with double glass tubes. One to be connected with a rubber ball to blow air in and the other through which the iodine is directed on the proper region. A small quantity of iodoform is placed in the jar, which is held near a lamp, only sufficiently to obtain the formation of the fumes.

Another mode is to resort to the thermocautery. The parts

which are to be submitted to the fumes of iodine are dusted with iodoform and the point of the thermo is brought near it so that the rising of the iodine fumes is easily produced. This last method is one which might be advantageously resorted to in veterinary practice.

The therapeutic indications of the use of fumes of iodine are quite numerous, and generally speaking they may be considered as the same where iodine in its various forms ought to be applied: either as *counter irritant,* alone or combined with the application of points of cauterization, as *antiphlogistic,* as *alterative,* in scrofulous swellings, as *antiseptic,* as *disinfecting agents.*

In human medicine the method has already been advantageously employed in furuncles, anthrax, chronic wounds and simple ulcers, ichorous, in cutaneous, glandular, or scrofulous lesions, in osteo-myelitis or bony caries, in oto-rhinology, old auricular affections, sinusitis. Without having specific qualities, it brings wounds to more healthy, cicatrizing progress. It has also been used with success under a different form, viz.: by the aspiration of the fumes into a glass syringe when it has been possible, then to inject articular cavities and treat severe synositis. In gynecology and also in dermatology the method has given good results.

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Local therapeuty with fumes of iodine is only entering in the domain of surgery and many must be the cases where it will be applied and their records be made public before it has passed the experimental state. Let us wait. But at the same time let us now put on record the experiments that were reported lately in the *Revue de Pathologie Comparée* by Mr. Lepinay, a veterinarian, and Dr. J. Chalut.

These gentlemen have made of the method daily applications in their practice. Recent wounds were treated without being obliged to resort to the application of a dressing, which they consider an advantage. They recommend that the fumes be used in

infected wounds, while then the tincture cannot. In laparotomy, they used it to protect from infection the stump of an amputated uterus. In ulcers, in some cases of fistulas, rebellious to all treatment, as in one case following an abscess which had been treated for two months before and which was closed in ten days after free incision, and a small quantity of iodoform treated with the thermo cautery. One case of osteitis of the humerus is also reported as improved. They also tried it in some forms of cancer, in auricular catarrh and in some specific skin diseases.

This method of application is certainly too recent to be fully appreciated, but from what has been said of it and of the results obtained in humans, and in veterinary medicine, I thought it of sufficient value to deserve the attention of the readers of the REVIEW.

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INTERMITTENT LAMENESS.—Does intermittent lameness of the hind quarters, due to the obstruction of some of the arteries of that part of the body, to thrombosis of the posterior aorta, the iliacs and their branches, that lameness which was observed by Bouley, Jr., in 1831, then by Gurlt in 1838, Herting in 1843, and which Goubaux found so common that he said it existed in more than 5 per cent. of the subjects he used for his anatomical works, and which after being noticed by many observers, finally came down to us with its successive series of symptoms, always the same in their appearance: does, in other words, the *peripheric intermittent lameness* by *ischemia* belong essentially or at least more particularly to solipeds—leaving aside the extremely rare similar cases that have been recorded in cattle, which, according to Cadéac, have been observed once by Haas in Germany, three times by Gualducci in Italy and once by Fordic in England?

The symptomatology of this affection is so characteristic, its mode of development, the nature of its manifestations are all so specific, that the diagnosis is perhaps almost one of the easiest upon which a practitioner has to decide. Indeed and for that

reason as soon as the history of a patient is heard and is accompanied by the detection of its intermittence with its spells of remittance and aggravation, by its gradual but sudden apparition by work, followed by its disappearance with rest, by the excruciating pain which accompanies it, by the profuse perspiration over the anterior part of the body, with the cold manifested over the limbs where the circulation is deficient, the loss of pulsation on the arteries of the affected parts, the expressive sufferings of the countenance, etc., etc., all those tell rapidly of the diagnosis, which is finally positively established by a rectal examination allowing the exploration of the principal seat of the disease, the posterior aorta, and reveals also the cause, viz.: the reduced or prevented circulation, by the presence of a thrombus, of various size and extent in the main blood vessel supplying the region, and also in many of its ramifications, obstructing more or less the lumen of the vessel and interfering with the circulation, thrombus resulting from the obliterating endo-arteritis, whatever may have been the original cause of the inflammation of the blood vessel.

Such is in brief *intermittent peripheric lameness by ischemia,* that which we all know and that has been observed in the large species of our domestic animals.

But to answer the question, whether those are the only ones that are affected with it, Dr. V. Ball, professor at the Lyon School, has recently published in the *Journal de Zootechnie* the history of one case in a dog.

It was a nine-year-old slut, which since a month had exhibited some difficulty in walking. She was stiff in her hindquarters. Soon the walking became more difficult, and the animal dropped down on her hind legs. After a few moments of rest, she was able to renew her promenade; soon to drop down again. Finally the condition grew so bad (the slut becoming almost paraplegic) that she was brought to the doctor for treatment. She died after a few days. The lesions were concisely as follows: Thrombosis of the anterior aorta, complete obliteration of the abdominal aorta and of the terminal portion of the thoracic, the two external iliacs are entirely obliterated, the internal iliacs also, but less exten-

sively. The right heart was dilated. The mitral valve showed lesions of vegetations of chronic endocarditis. At first, Dr. Ball thought this slut had chronic atheromatous aortitis, but careful examination failed him to detect any truly atheromatous lesion. There were more lesions of chronic aortitis, of arterio-sclerosis or perhaps the slut was only in the first stage of atheromatous degeneration. At any rate it was a plain case of *ischemic intermittent lameness.*

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And now a glance in comparative pathology. I extract this from a lecture of Prof. Dejerine, as I think the connections relating to the disease under consideration are quite interesting.

A woman, 37 years old, of healthy family, and having herself always been healthy, became ailing. Her troubles go back several years. Very quick and active, she noticed at a certain time that her left leg was getting weak. It got tired quicker than the right. That left leg was heavier and after walking a certain time she was obliged to stop. A few moments of rest were sufficient for her to regain her suppleness and easy motion, which she kept for a time, until after another little distance, some 200 or 300 yards, the same condition obliged her to stop again. Lately the same symptoms have increased and extended to the right leg. They are indeed such that they interfere very much with her general condition. She can walk normally for a while, but soon has to give it up; she must sit down for a few minutes, after which she can resume her exercise.

And Prof. Dejerine says: "In reality, in this instance only one diagnosis is possible, as there is only one disease that can produce exactly these symptoms; it is that of peripheric intermittent lameness, due to obliterating arteritis of the lower extremities, similar to that observed in horses."

How interesting is this connection of a disease observed in such different species of living beings, described first by veterinarians in large domestic animals, then in man by Charcot in

1859 and finally in dogs by Dr. Ball. What a strong link in the chain of comparative pathology.

The case of Prof. Dejerine, however, was of another nature, and although the first of its manifestations had justified the diagnosis, it was modified into that of *intermittent spinal claudication* on account of specific nervous symptoms due to lesions of the spinal cord, and which, on account of their specificity, are not detected in animals. According to this, human beings may manifest intermittent peripheric lameness, but animals cannot have intermittent spinal claudication.

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WILLIAMS' OPERATION FOR ROARING.—When Prof. Williams came to England to demonstrate his operation for roaring, he certainly had made up his mind that it was there, that it could be tested more extensively in its results, it being an admitted opinion that in England the number of roarers was larger than anywhere else. This opinion needed a statistical proof, and this has been given to a certain extent by a communication of the *Veterinary Journal,* where Prof. Hobday has stated that since "Dr. Williams came to England he had operated upon more than 520 horses." It is doubtful if any other practitioner can make a similar claim.

In this article of Prof. Hobday, however, the object was not to give the number of horses upon which the operation had been performed, but to answer the important question of the results and to show that if this operation was beneficial, it would remain permanently so. And then a list of over 100 of the cases operated is given, showing the date of the operation, the condition of the horses before operated, the result on first trial, and then the result after a later period, varying between 18 months to 2½ years. Of these 100 cases, 55 are quoted as excellent, 45 only as satisfactory, but yet with these last, it seems by the reading of the notes relating to them, that they might just as well be considered also excellent as well as the other 55.

With the recent mode of operation perhaps the results will be still better. Good results for the horses, no doubt excellent and satisfactory to Prof. Hobday, and of great honor to our esteemed friend Williams.

But there are still some points which demand to be carefully considered and among the veterinarians who have performed the operation in England and given the profession the benefit of their experience and of their observation, Prof. J. J. O'Connor, of the Dublin Veterinary College, occupies a first rank. In a recent article in the *Veterinary Record,* he relates one case which suggested to him an addition in the *modus operandi* of the operation and which came to his mind by the observation of a special case.

Calling first the attention to the fact that on opening the larynx of a living or dead animal which has been operated for roaring, one will observe the deformity caused by the left arytenoid cartilage projecting towards the lumen of the larynx, although the laryngeal ventricles have been completely obliterated. And again, that he will also notice that this arytenoid is quite movable and may yet vibrate and create a noise, perhaps not so strong, but still similar to that in the case of a roarer not operated upon. Prof. O'Connor relates that a hunter was brought to him for the roaring operation. The hunter was recognized as one which had been operated already two years previous. The skin being shaved, showed the cicatrix. The larynx was open, both ventricles were found obliterated, but the left arytenoid was movable and decidedly interfering with the lumen of the larynx and of course with the respiration. To remedy this, the professor suggests: "In addition to the stripping of the ventricle, to remove a strip of mucous membrane from the outer lateral aspect of the arytenoid, thus making a wound which in cicatrizing will draw the arytenoid away from the median line and fix it to the thyroid, thus making it less movable and preventing its coming in the way of the inspired air." Horses operated which would seem to have a poor or a bad result might be improved by the proper application of this suggestion.

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A CORRECTION.—In the Chronicle for June, I gave the last information I had in relation to the 150th anniversary of the foundation of the Veterinary Schools, but since the date of that ceremony has been changed and postponed to the end of October, the 26th. Special official notices and invitations, we are told, will be sent to professional journals, to veterinarians and to the different schools of Europe and other countries.

We shall at the proper time give our American confrères as complete a report of the ceremonies as we will be able to collect.

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PAMPHLETS AND JOURNALS ACKNOWLEDGED.

Circular 198—Bureau of Animal Industry. *The bacterium of contagious abortion of cattle demonstrated to occur in milk.*

The Cape Province Agricultural Journal. One of the first number. A quite large issue, handsomely illustrated with plates of animals, prizes, shows, and which—among articles of general interest—has also one on Veterinary Notes by an anonymous F.R.C.V.S.

The Agricultural Journal of the Union of South Africa, May number, contains the continuation of the "Anatomy and Physiology of the Ostrich," by Prof. Duerden, and an article from Dr. A. Theiler on "Rickets, Osteomalacia, Osteoporosis and Pica," which will be analyzed later.

The proceedings of the *Indiana Veterinary Medical Association.* Meeting of January last.

The Cornell Veterinarian, June issue—with an article on "Catalase and Reductase Tests," one on "Veterinary Curriculum" and one on the "Veterinarian in Sanitary Milk Production."

Veterinary Notes, Parke, Davis & Co., June issue.

Chicago Veterinary College, Bulletin of March, 1912.

A. L.

CANADIAN GOVERNMENT APPOINTS SUCCESSOR TO DR. RUTHERFORD.

Dr. Fred Torrance, Winnipeg, on the recommendation of the Minister of Agriculture, has been appointed Veterinary Director General to succeed Dr. J. G. Rutherford, who retired from that position, and that of Live Stock Commissioner, some months ago. Dr. Rutherford had done an immense amount of work in the control and eradication of infectious and contageous diseases of animals, had rendered the Dominion of Canada an incalculable service in public health matters generally, and had organized and set in motion an immense sanitary system, that the government realized it would require a man of more than ordinary ability to continue to operate to the best interests of the government. Hon. Martin Burrell, who had the matter under consideration, realized that some of the large questions affecting the national health, like that of bovine tuberculosis, yet remained to be dealt with, and that it was essential to secure a man whose scientific training and executive ability would enable him to handle these problems in the manner that their importance demands. Such a man has been found in the person of Dr. Fred Torrance, so well known both in the United States and Canada, that it is scarcely necessary to add any comment here, although a word as to Dr. Torrance's peculiar fitness for the position might not be out of order. Dr. Torrance, after obtaining his B. A. at McGill University, spent a year at the Ontario Agricultural College, and then the Veterinary College, taking the V.S. and finally D.V.S. from the School of Comparative Medicine at McGill University. The doctor, thus equipped with knowledge and degrees, went to Brandon, Manitoba, where he engaged in general practice, and at the same time held the position of district veterinarian under the provincial government. In 1897 he moved to Winnipeg, where he became actively engaged in general practice and won the distinction of being one of the largest and most successful veterinary practitioners in Canada. When the Agricultural College of Manitoba was organized, he was appointed Lecturer in Veterinary Science, and

afterward was made professor, a position which he has held up to the present time. He has always taken an active interest in his profession, was one of the first members of the Veterinary Association of Manitoba, having been its secretary-treasurer and registrar for the past ten years. He is a member of the International Commission on Bovine Tuberculosis, and during the present year Dr. Torrance was entrusted by the Minister of Agriculture with an important mission to England, to make an investigation into epizootic abortion of cattle, consulting while there with Sir John McFadyean and Dr. Stewart Stockman. For the present Dr. Torrance will act as Live Stock Commissioner as well as Veterinary Director General, as his predecessor did, but it is the intent of the Minister of Agriculture to separate the two offices during the year. The REVIEW congratulates Dr. Torrance on the great honor his government has bestowed upon him in selecting him for so important an office in its service, and at the same time we congratulate the Canadian government upon the wisdom of its choice of a Veterinary Director General.

THE INDIANAPOLIS MEETING OF A. V. M. A.

Never in the history of the association have so many members and visitors congregated at the convention city so far in advance of the date of opening as at Indianapolis. Probably two hundred had arrived on Sunday; and they continued to pour into the Hoosier capital all day Monday. Tuesday, Wednesday and Thursday also showed increased registration each day, so that by Thursday evening approximately six hundred veterinarians and about one-third that number of ladies were in attendance. President Brenton sounded the gavel at 10:30 a. m. of the twenty-seventh in the Auditorium of the German House, and declared the forty-ninth annual meeting in session. Ex-Mayor Brookwater gave one of the most pleasant and cordial welcomes to the city that the association has ever received; which was responded to by Dr. John G. Rutherford, who seemed to be in splendid form, and delighted both Mayor Brookwater and his audience. In its election of officers, the association chose Dr. John R. Mohler, of Washington, D. C., for its president, and expressed its appreciation of the efficiency of the services of Secretary Marshall and Treasurer White by re-electing them to their respective offices.

Notes on the Indianapolis meeting will be found on page 739, and a detailed account will be published in our next issue.

ORIGINAL ARTICLES.

DISEASES AND TREATMENT.*

By B. F. Kaupp, M.S., D.V.S., Ft. Collins, Colo.

Dr. G. Ed. Leech, of the committee, says for Minnesota: "The state of Minnestota is to be congratulated upon the fact, as stated before, that the Live Stock Sanitary Board has Dr. S. H. Ward as secretary. Tuberculosis is practically eliminated from the pure blood herds of the state, and I can positively say that among the grades and the dairy herds of the state, there is a very marked reduction in the condemned cases, thanks to the united efforts of the profession of the state to do honest clean work. We are gradually reducing the number of positive reactors each year.

"There has been very little glanders reported. The most of the cases are confined to the twin cities.

"Hog cholera, anthrax and blackleg have done very little damage since making my last report. There is scarcely any anthrax and very little hog cholera and blackleg. Outbreaks of these two diseases have been promptly reported and vaccination has resulted in very light loss.

"Minnesota is to be congratulated along these lines upon the work done by the general practitioner and the Live Stock Sanitary Board and its corps of efficient field men, who are working together harmoniously for the suppression and eradication of contagious and infectious diseases, and with an efficient and capable secretary in charge of the live stock sanitary work who is continually watching the legal phases of the question, there can be no fear but that Minnestota will always be as she is now, reporting a low average in infectious and contagious diseases."

* Report of the Chairman, Committee on Diseases and Treatment; Missouri Valley Veterinary Association, July 1 and 2, 1912.

For Nebraska Dr. A. Bostrom reports as follows: "In regard to our state will say that we have been fortunate during the past year is not having serious outbreaks of any epizootic diseases among our live stock in Nebraska. We have had, however, local outbreaks as usual in horses, cattle and hogs. Glanders, tuberculosis and hog cholera are the most serious.

"*Glanders*—From January 11 to July 1 twenty-six horses and two mules were killed by this department. These were destroyed without any indemnity. The last legislature appropriated $25,000 to be used for indemnifying owners of horses destroyed by the state, on account of being affected by glanders. This appropriation became available the seventh of July, 1911. Since that date we have up to June 1, 1912, or almost eleven months, killed one hundred and thirty-five horses and fourteen mules, for which we have paid $10,290.27. We find that horse owners are anxious to report all suspicious cases now since this law took effect and we believe that we will soon be able to eradicate this disease.

"*Tuberculosis*—We have not had any systematic testing for tuberculosis during the past year, except at South Omaha stock yards, and for interstate shipments.

"*Anthrax*—An outbreak occurred west of Omaha on three farms, along the Papio River, in which both cattle and horses died, and two men became infected but recovered. About 700 cattle and horses were vaccinated at once and the disease was promptly checked.

"*Hog Cholera*—This work is done mostly under management of our experiment station at Lincoln, and a great amount of serum is used with good success, except in a few cases where there seems to be mixed infection. The southeastern part of the state has had the worst siege of hog cholera in years.

"*Blackleg*—This disease is being gradually stamped out through vaccination. The government vaccine, distributed through the department of animal pathology of the Nebraska Experiment Station, is generally used.

"*Infectious Anemia*—This disease is prevalent to a certain

extent in the northeastern part of the state. The state experiment station is still carrying on experiments with this disease.

"*Scabies in Cattle*—This parasitic disease is generally being eradicated. Last fall the cattle were in fine condition and they have stood the severe weather without much loss. A few outbreaks occurred in a non-quarantined area. We have employed a man for the last two months especially for the purpose of looking after these cases.

"*Scabies in Sheep*—Several local outbreaks have occurred in different parts of the state. These cases are looked after as soon as reported and held under quarantine until the sheep are dipped.

"*Ulcerative Ano-Vulvitis in Cattle*—We have had only a few outbreaks of this disease during the past year. In one herd forty out of sixty were affected; some very extensively, but all recovered.

"*A New Disease in Horses*—Last fall a great number of horse owners from several counties in the western part of the state reported to this office that they have a new disease affecting hundreds of horses in their community. The description of the disease in all of these reports is identical: Swelling of the breast with formation of large abscess which would rupture and discharge a considerable amount of thick creamy pus. These abscesses would sometimes form on other parts of the body. This affection was found quite prevalent in horses all over the western part of the state. Some invstigations were carried on by the department of animal pathology of the station. As yet there is no report."

Chairman's Portion of Report.

Contagious Abortion—As usual contagious abortion has claimed its share of toll in the Middle West during the past year. In spite of inspections some pure-bred animals introduced from farther east to new localities carry the contagion.

Not only does contagious abortion affect cows, but in some localities mares.

While several microorganisms have been isolated and re-

garded by some as causative agents, yet the short, slender bacillus with two or three chromatin granules, named the *Bacillus abortus,* and first isolated by Bang, is, to say the least, the most often found associated with this disease among cows. Considerable research work has been done by Professor Good, of the Kentucky Experiment Station, who has made considerable study from an etiological standpoint, both among dairies and studs. In the latter there was considerable loss sustained among standard bred and thoroughbred mares. From mares he has isolated a short, plump bacillus from the material of the aborting mares, which appears at least to be the cause of contagious abortion among mares in Kentucky.

It is generally considered that the infection may reach the uterus before pregnancy, at time of copulation or find its way into the vaginal tract after conception.

The organisms are found between the mucous membrane of the uterus and chorion of the fetal membranes. It produces a purulent, yellowish-white-like fluid. At the time of the expulsion of the fetus there may be found a quart or more of this fluid. The germs may enter the circulation of the fetus by way of the placenta. In these cases the germs can be isolated from the internal organs or blood of the fetus.

The symptoms and method of detection of this disease is very important. There may be a slight yellowish-white odorless discharge from the vulva. The animal may appear dull and remain away from the herd. In lactating animals there is a usual falling off in the yield of milk. In heifers the udder appears suddenly larger, and enlargement of the vulva, as if parturition was approaching. After the fetus is expelled the fetal membranes should be removed. Neglect of this has resulted in loss of the cow. The uterus should be irrigated with a mild warm antiseptic and all fluid later removed from the uterus. This should be continued till all discharge has ceased. The animal may now be bred.

It is generally regarded that contagious abortion causes the expulsion of the fetus between the fifth and sixth month of gestation. It has been observed that in herds where contagious

abortion has just gained a foothold the animals may abort much earlier than in those herds where the disease has existed for considerable time. On account of the slow immunity the animal gradually gains, she finally carries the fetus full time and may cease aborting. However, the length of immunity is an important factor for future research to determine. It has been observed that an aborting cow after losing two or three foeti finally deliver two or more full term, and which live, and this same cow later again aborts. Heifers usually abort earlier than cows.

Some work has been done in regards to securing a proper vaccine to combat the disease. This has been variously prepared and variously used and has met with various results. It appears that this germ does not give off as virulent a toxic substance as does the *Bacillus necrophorus.* This being the case, if we are to succeed, it will be with large and repeated doses.

Necrobacillosis—This disease is of considerable economic importance in this great Middle West and particularly in the intermountain region.

Necrobacillosis in the Horse—It has been announced by some investigators that they have found the *Bacillus necrophorus* a causative factor in summer sores or bursatti. The subject of bursatti appears far from settled, as while this is the apparent cause in one part of the country or world, in still others necrosing skin lesions called by this same name in some cases are pronounced as due to a filaria or worm, minute in size, in others apparently a fungus and so on. Sloughing hoofs are sometimes caused by the *Bacillus necrophorus.*

Recently a chronic case of grease heel was presented in Dr. Kingman's clinic at the Colorado Agricultural College. The case was one of some two years standing. Both hind legs were swollen nearly to the hocks and presented the appearance of chronic grease heel. Dermatitis, skin thrown up in folds from which a grease-like substance with offensive odor exuded. The writer observing the case considered the odor as that simulating necrobacillosis and accordingly made a smear and stained with Löffler's

methylene blue, when long thread-like metachromatic staining threads simulating *Bacillus necrophorus* were observed. Characteristic cultures were obtained in tubes of glucose agar and grown after the shake anaerobic culture method.

A rabbit was inoculated subcutaneously and died on the sixth day. Upon removing the skin there was found characteristic necrosis with odor of necrobacillosis. Smears from this lesion stained and examined under the microscope showed the characteristic *Bacillus necrophorus*. Pure cultures were obtained as before.

This case showed marked improvement under hot bichloride packs.

Recently an autopsy was held on an eleven-month-old colt in the writer's investigation work of "no name" disease in Southeastern Colorado. An ulcer was observed in the stomach near the cardio-pyloric juncture and on the pyloric side. The ulcer measured one-half by three-fourth inch and was covered with a crust-like diphtheritic membrane like that observed in stomach ulcers in hogs, due to the *Bacillus necrophorus*. As a matter of routine the section was cut out and placed in formalin with the balance of the specimens. Upon sectioning, staining and studying this specimen under the microscope the part was found to be packed with bundles of the *Bacillus necrophorus*.

Necrobacillosis of Cattle—It has been stated by some investigators that contagious ano-vulvitis so common among cows and heifers some years ago and which has again caused some trouble during the past year, is due to the *Bacillus necrophorus*. Necrobacillosis among cattle is a serious disease in some parts of the country. In the San Louis Valley in Colorado much loss is realized. Recently there was sent to the writer's laboratory the head of a calf from Palmer Lake. Ulcers due to the *Bacillus necrophorus* were found on both sides of the mouth, causing a bulging appearance from the outside. Upon examination there was found a sloughing of the mucous membranes covering the gums and cheek and had invaded the bone. This man had lost six calves out of eight. He stated that the condition appeared

worse in cold stormy weather. He was advised to clean up the yard, sprinkle lime around the correll and on the stable floors. Disinfect with creolin or carbolic acid, 5 per cent. Isolate the well ones from the sick calves and swab out the sores with a 1 per cent. permanganate of potash or the same strength of creolin. All buckets for serving drink should be separate for the sick calves.

Nor does necrobacillosis in cattle stop at this point. There is an excellent specimen in the museum of Colorado Agricultural College of a liver of a beef thoroughly permeated with necrotic areas teeming with the *Bacillus necrophorus.*

Necrobacillosis of Sheep—Sheep and particularily lambs first placed in the feed lots are subject to wounds of the lips due to the hard alfalfa, Russian thistle, etc. Those placed on beet pulp and other feed soft in nature do not contract sore lip. In these wounds pus germs, principally the streptococci and staphylococci, aureus and albus, gain entrance, later the ubiquitous *Bacillus necrophorus* enters, finds conditions favorable by this symbiosis and produces a deep slough, cup shaped and containing a cheesy necrotic material. These lesions emit the characteristic odor and from them the *Bacillus necrophorus* can be isolated. In the sheep placed in the feed lots of Arizona, New Mexico and Colorado the organism finding its way into the wounds is of a strain with low virulency and the sheep recover or gain an immunity in from three to four weeks without treatment. According to statistics gathered by the writer in this investigation work, it appears that this disease has existed in this region, and about the same virulency, for at least thirty years. In Wyoming the *Bacillus necrophorus* is of a more virulent strain and attacks the legs, sheath and other genitilia. Its recovery does not take place spontaneously, but yields readily to hot creolin or similar antiseptic.

During the past winter and spring some interesting observations have been made by Dr. H. S. Eakins, secretary of the Wyoming Sheep Inspection Board.

Ewes having trouble lambing are sometimes assisted by the sheep herder who inserts the hand. Often these cases die of

gangrenous metritis with the *Bacillus necrophorus* present as one of the causative factors. The female genitilia are often infected by being covered with a ram with a necrotic ulcer on the penis or sheath. In one band where ewes were bred under these conditions in December, they aborted during the winter, Dr. Eakins has noted a lamb born with a necrotic ulcer on the head and one with a necrotic ulcer on the tail at three days old.

Recently an imported ram belonging to the college became ill, there was loss of appetite, dull, and later accelerated respiration. The buck died on the third day. An autopsy was held. The following is the anatomical diagnosis: Ulceration of the prepuce and entire urethral passage, covered with a diphtheretic membrane. Hemorrhagic cystitis with retention of urine. Diphtheritic membrane of ureters and pelvis of kidneys Hemorrhagic infarct of left kidney. Cheesy necrotic areas up to one-fourth inch in diameter throughout both kidneys. Both kidneys were four to five times their normal size, the right one weighing 400 grams. The sectioned surface appeared grayish and friable. Cloudy swelling, inflammation and areas of necrosis. Calculi in the left ureter. Caseation necrosis of the deep inguinal lymph glands.

Microscopic Diagnosis—The capsule of the kidney stripped easily, adhering only at the whitish gray areas that were superficial. A smear from these areas stained with Loffler's methylene blue showed characteristic metachromatic granular staining *Bacillus necrophorus,* proving the case one of necrobacillosis. A culture was made in plain agar by shake method for anaerobic germs when a characteristic growth appeared.

Sections made from the kidneys extending into the necrotic area showed cells in all processes from cloudy swelling to necrosis, as well as acute nephritis with intense active congestion.

This buck was purchased from a herd in Wisconsin less than a year previous to his death. He had not had access to ewes for at least four months and no cases of necrobacillosis had been known on the premises for two years.

Necrobacillosis in Hogs—This beast of the devil comes in to pay his toll. Three years ago the writer investigated an outbreak

among 127 hogs near Lafayette, Colo. The entire herd, ranging from suckling pigs to hogs weighing 400 pounds and ready for the market, died.

The blood study showed the following:

Animal.	Numerical.		Differential.						Remarks.
	Erythrocytes.	Leucocytes.	Polymorphs.	Monos.	Lympho.	Eosin.	Must.	Hb.	
Hog, weight 125 pounds..	5,800,000	10,000	5	34.5	59	1	1.5	90	Sick 3 days; very sick.
Hog, weight 200 pounds..	3,520,000	40,000	13	16	69	2	2	93	Sick 7 days; nearly dead.
Hog, weight 250 pounds..	3,408,000	24,000	7	15	76	.5	1.5	85	Sick 8 days.

NOTE—Microcytes, Megalocytes and Poikolycytosis.

In these cases there was found necrotic ulcerations on various parts of the legs and some extending to the bone, the same may be said of the nose and mouth with destruction of the bone in some cases. Ulcerations in the center of an area of acute gastritis is common. In some cases in suckling pigs only an erosion of the mucocus membrane of the tongue or a smaller gastric ulcer is noted. In these cases the pig shows signs of being very sick. The toxin is very virulent and often a small lesion in the mucosa may give off enough toxin to cause death of the pig.

It has been said that this germ may be found in the intestinal tract of healthy animals.

One hog owner found that his hogs or pigs always contracted necrotic stomatitis if they were allowed access to the horse manure.

The writer has frequently found outbreaks of necrobacillosis along with hog cholera.

Parasitism—Parasitism is ever present in the horse. Of ten horses autopsied by the writer during the past year the following is the result as to parasites:

Strongiles in the caecum and colon, 100 per cent.; aneurysm of the great mesenteric artery due to the larva of strongiles (diagnosis confirmed by the finding of the worms in the blood cogulum), 100 per cent.; gastrophilus hemorrhoidalis larva in the

stomach, 80 per cent.; ascaris megalocephala, 10 per cent.; gastrophilus equi larva in stomach, 10 per cent.; spiroptera microstoma, 10 per cent.; sclerostoma tetracanthum, 20 per cent.; filaria papillosa, 70 per cent.

Of twenty-four autopsies held upon all ages of chickens the following was the result: Heterakis papillosa, 25 per cent.; menopon biseriatum, 12 per cent.; cytodites nudus, 8 per cent.; ascaris inflexa, 5 per cent.; tænia infundibuliformis, 4 per cent.

Parasitism is of more importance than is generally given credit by the average practitioner. Many of the parasites give off poisonous proteid-like poisons which, when absorbed in sufficient quantities, produces constitutional disturbances. All have noted the effect of the oxuride or pin worm. The writer is of the opinion that many of us are too lax in our autopsy work in the search for parasitism. In the past year every case examined for aneurysm of the great mesenteric artery has proven positive. In one of these cases the horse was only eleven months old. An aneurysm was found the size of the finger and in which coagulum was found four larval strongiles. Some of these aneurysms are three or four inches from the point where the artery springs from the posterior aorta.

The *Sarcocystis miescheri* in all probabilities causes more injury among cattle and sheep, and possibly other animals, than has heretofore been supposed, and may be the cause of some of the occult troubles. In an outbreak among sheep where several had died, two were autopsied and the skeletal muscles as well as the heart were found to be thoroughly studded with this parasite. The writer has found this parasite in three beef hearts during the past year which are believed to have contributed disease from which these cattle died. In one heart intense congestion was observed.

Our secretary has asked me to make a report of some of my investigations into poultry diseases during the past four years. This I have reluctantly consented to do.

White Diarrhoea of Chicks—There are two causes of white diarrhoea in chicks as I have found it. First, the bacillary form due to the *Bacillus pullorum,* a very short, plump, rod-

shaped germ with rounded ends, and, second, a protozoon, the *Coccidium tenellum*. The germ of the bacillary form has been isolated from the liver, spleen, kidneys and other organs of chicks dead of the disease, and the coccidian form from ulcers we have found in the caecum and intestines.

Symptoms—The bacillary form is accompanied by droopy wings, ruffled feathers, sleepiness, a tendency to huddle together, and little or no appetite. The abdominal yolk is not properly absorbed and the whitish-brown, frothy discharge from the bowels adheres more or less to the vent fluff; the eyes are closed part of the time and there is apparently no interest in life. The appearance in many is stilty, with abdomen prominent behind, and they peep much of the time. In these cases, after death, one finds the yolk unabsorbed, or only partially so, and the intestines are more or less full. Chicks that hatch in late fall, winter or early spring are freer from this disease than summer hatched. This may be explained by the fact that hens with diseased ovaries gradually become poorer layers as the disease processes advance, and, hence, only lay in late spring or early summer when nature intends reproduction of birds. Finally the hen may cease laying altogether.

In the coccidian form the symptoms as studied by the writer are similar to those of the bacillary form, except that, as a rule, the heavy death rate takes place later.

Mode of Spread—In the bacillary form the ovaries of laying hens, diseased but still functionating, may be infected by the germ. The germ can be isolated, particularly from the yolk, of at least some of the eggs from such an ovary. The chicks from infected eggs, as a result, have the disease more or less developed when hatched, as conditions which favor hatching also favor the multiplication of the germs to such an extent that sufficient toxic poisons have already been produced in the young to cause the disease, or at least manifest itself within a few hours after hatching. From these chicks the whitish, frothy, pasty bowel discharge, more or less sticky and with a tendency to paste up the vent, is laden with germs, and others of the flock soon become infected from contaminated food picked up from the ground. In the bacil-

lary form the chicks may begin to die soon after hatching; in the coccidian form in from three to four days to ten days, a few dying each day till about the twenty-first day, then only a few after that time.

The death rate is high, reaching in many cases 75 per cent. or more. Those that recover are stunted and do not make satisfactory growth. It is probable that the disease carriers are recovered chicks, which have established immunity but still carry organisms, especially in the ovary, as typhoid carriers do in infected kidneys or bowel ulcers.

Coccidian Form—The mode of spread of this form is at present problematical. It is possible that chronic types occur in some birds and thus perpetuate and scatter the organism.

Post Mortem—In the bacillary form the liver in general is usually pale, showing areas of active and passive congestion and cloudy swelling. The yolk is only partially absorbed and congestion of the intestines may or may not be present. The kidneys are normal in size, but show congestion and cloudy swelling, and the carcass is more or less pale and emaciated.

Coccidian Form—Upon post mortem examination the conditions are found to be similar to the bacillary form, except that there will be noted more or less congestion of the intestinal lining with ulcers in the intestines, principally the caecum. The caecae appear to be interfered with functionally, containing considerable ingesta. A study of a section through these ulcerated areas show cloudy swelling followed by other retrogressive changes and death of the cells. The remains of the dead cells form a cheesy mass. It will be noted in many places that the mucosa is entirely denuded or at most only remnants of glands remain. Often these processes extend into the submucous structures.

Repeated examinations have been made of healthy chicks killed for the purpose, and chicks dying from other causes, and thus far no case has shown these conditions.

Treatment—Unsanitary conditions, spoilt feed, dirty, stagnant water, improperly ventilated incubators, brooders and buildings, or badly regulated heat are factors in weakening the physical

condition of chicks and favors ravages of disease. Chicks should be fed from troughs and watered from fountains. Solutions of permanganate of potash, carbolic acid and other similar drugs have given us no good results. We have succeeded in saving 75 per cent. to 80 per cent. of the hatches where we kept constantly before them a solution of sulphocarbolates of zinc, calcium and sodium with 1-10,000 bichloride of mercury, using citric acid as an aid to dissolve the mercury. Later we have tried the three sulphocarbolate compounds mentioned with the addition of sulphocarbolate of copper, and at present it appears to be a good substitute for the mercury.

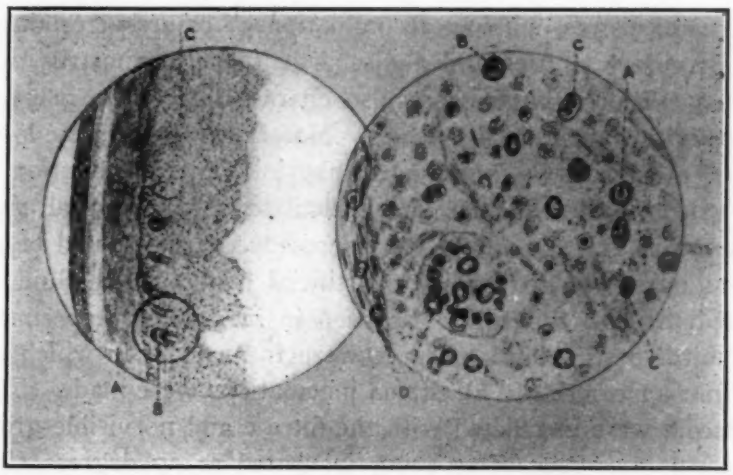


Figure 1. Figure 2.

Figure No. 1 illustrates a drawing through an ulcer of the caecum due to the coccidium tenellum (from a case of coccidian white diarrhoea). A, the muscular coat; B, remnant of one of the glands; C, the degenerated, disintegrating mass, complete destruction of the mucous membrane; magnified 100 times.

Figure No. 2 shows a higher magnification of the above indicated by B; magnified 900 times. This shows various stages in the life cycle of the coccidium tenellum. A, the cocyst; B, first stage of the sporoblast; C, first stage of the sporozoit; D, the schizont stage showing the merozoites, these are surrounded by a disintegrating cell mass; E, one of the polymorphonuclear

neutrophiles. Three of the protozoa have invaded the musculature.

ROUP OR AVIAN DIPHTHERIA—This condition is sometimes called swelled head, because usually there is swelling about the head.

Cause—The cause appears to be far from settled. American and European investigators have from time to time isolated different germs, all of which perhaps contributed to the production of conditions found, but there are none of these germs that are constantly found by all. With a view of determining whether or not the type of roup existing in Colorado is due to an ultramicroscopic germ, two diseased hens were secured. These birds had swollen eyes, with an accumulation of catarrhal product in the maxillary sinuses and a discharge from the nostrils of an offensive odor. There were also characteristic yellowish-white diphtheritic patches in the mouth. Material from all these lesions from both birds was prepared in physiological salt solution and filtered through a Pasteur filter, calculated to take out all germs that can be seen by aid of the microscope or that could be produced in visible growth upon artificial media. The fluid that passed through this filter was used in inoculation experiments. The birds used for this purpose were from flocks in which roup had not appeared. In all fifteen inoculations were made. Tubes of media were inoculated with the filtrate and no visible growth of germs was seen after being incubated at 37 degrees Centigrade for 72 hours.

Observations were continued on the inoculated birds for a period of thirty days and roup did not appear in any of them. So far as this one experiment goes it does not indicate that our type of roup is due to a filterable virus.

Mode of Spread—The disease is spread by the introduction of birds from infected premises, and by exposure of birds at poultry shows to the contagion. A chronic type of the disease in some birds of the flock may serve to infect others, when they are weakened by predisposing causes, as by exposure to cold, damp roosting places, drafts and badly ventilated buildings.

Symptoms—There are three forms of the disease. In the

nasal form there is at first a thin watery discharge from the nostrils, with an offensive odor which is characteristic of roup. Later the catarrhal product becomes somewhat thicker and the nostrils become glued shut, and quite frequently there is a bulging of the maxilliary or infraorbital sinus. This is due to the accumulation of the inflammatory products in this sinus. The second part affected is the mouth. This affection often accompanies the nasal form. It is characterized by diphtheritic ulcerations which are covered with a yellowish-white crust or coagulated exudate. These necrosing patches gives it the name of avian diphtheria The third location is the eye. There is at first an inflammation of the mucous membrane covering the anterior part of the eyeball. As the disease progresses, the catarrhal product accumulates as a watery clot-like mass, whitish in color. The eyelids stick together and hold the material as it accumulates till the parts bulge outward. There is sneezing, shaking of the head and expulsion of mucous and loss of appetite; the bird appears weak, and has a tottery walk and becomes rapidly emaciated. Breathing is difficult at times, and often there is diarrhoea, and the bird dies in a few days.

Treatment—Correct any condition which may be a predisposing cause. The hen-house should be well ventilated, but without drafts on the birds, and it should be cleaned and disinfected daily. If the bird is not valuable, kill and burn it. Treatment with drugs differs with the location of the lesion. For the ulcers or diphtheritic patches in the mouth, nothing is better than burning with stick nitrate of silver. For the eyes, press open the lids and remove the material with clean absorbent cotton, then apply the material as for infection of the nostrils. Wash out the nostrils with a 20 per cent. solution of common baking soda, then with peroxid of hydrogen. With a medicine dropper or small syringe, inject some of the following: Oil of thyme, 1 dram; oil of eucalyptus, 20 drops; oil petrol, 2 ounces. Give plenty of clean water and soft feed. Give one grain of quinine three times a day, as well as a tablespoonful of castor oil.

A CORRECTION: In Dr. H. D. Bergman's article, "Oil of Camphor," on line 6, page 587, should read, "camphorated oil."

BIOLOGICAL PRODUCTS (VETERINARY).*

By Robert H. Wilson, D.V.M., Detroit, Mich.

The rapid advances made in recent years in microbiology have given a clearer conception of disease and its processes. The extensive investigations of infection, immunity and their various phenomena have resulted in the development of new methods of diagnosis, prevention and treatment of specific infectious diseases, through products of biological origin. These products, which include toxins, antisera and vaccines, are of bacterial origin and consist of the substances resulting from bacterial growth of the reactive agents in the blood of animals treated with bacteria, or their toxins, and of bacteria modified more or less.

It is only within the past few years that biological products have been employed extensively in veterinary medicine. There has existed more or less prejudice against them on account of their expense and apparent inefficiency in some cases. But this prejudice has been practically eliminated, and the demand for the products would indicate that their practical value in most instances has been proven without a doubt. The products which have been developed recently have met with general favor, for the modern veterinarian, like the human practitioner, is ever alert to acquire methods that will materially aid him in his chosen work.

Before taking up a discussion of the various biological products used in veterinary medicine, it will be well to review briefly the subject of immunity, for it is on this all important subject and its phenomena that the biological products have their basis.

By immunity is meant resistance, or non-susceptibility to a disease or an organism, or its metabolic products, either under

* Read before the February, 1912, meeting, Michigan State Veterinary Medical Association. Research Laboratory, Parke, Davis & Co.

natural conditions or under those experimentally produced. Resistance to infection is often a natural inborn quality of a species or an individual. Such resistance is named natural immunity. Immunity may be acquired by an animal either by passing through an attack of the disease, or by means of artificial inoculation. It is with this latter method of producing immunity that the veterinarian is concerned. According to the process by which it is produced, acquired immunity may be said to be of two kinds, active and passive, the former being more or less permanent and the latter temporary.

Active Immunity. Active immunity may be obtained by one or more injections of the organisms, in a weakened condition or by sub-lethal doses of virulent organisms or their toxins. By increased doses at varying intervals, the animal will develop in the course of time a comparatively high degree of resistance to the material injected. Such means constitute the process of preventive inoculation or vaccination. The production of active immunity is a comparatively slow process. The resultant resistance lasts a considerable time, the duration varying in different cases.

Passive Immunity. Passive immunity depends upon the fact that if an animal has been rendered immune by any of the methods used in the production of active immunity, its serum will contain substances which have distinctly antagonistic or neutralizing effects on the specific bacteria or their toxins, whichever the case may be. Such sera may be used prophylactically or therapeutically in the early stages of the disease.

In the case of active immunity the animal protects itself through its own activities, the cells of the body participating in the process. In passive immunity, protection depends upon substances developed in some other animal, the individual receiving these substances having practically no part in the immunizing process.

Antibodies. Among the anti-substances, or antibodies developed in the tissues of an infected animal, or one actively immunized may be named antitoxins, lysins (bacteriolysins), opsonins, agglutinins and precipitins.

Briefly, antitoxins are formed as the result of the introduction of toxins. They are so named because they combine and render inert their specific toxins. They are biochemical substances, which are given off from the cells of the body. The nature of their composition is as yet undetermined.

Lysins. The injection of cells, animal, plant or bacterial have been found in most cases to stimulate the formation of specific antibodies, which have the power of dissolving or breaking up these cells. The antibodies are known as cytolysins and are usually named with reference to the cause of their production, as bacteriolysins, hemolysins, etc. The injection of bacteria produce bacteriolysins, red blood corpuscles, hemolysins. Two elements known as amboceptor and complement are essential for producing the lytic action.

Opsonins. Antibodies which sensitize bacteria rendering them more susceptible to the attacks of the phagocytes. These substances were forcibly brought to the attention of medical science in 1902 by Wright and Douglas, as the result of their studies on opsonization.

Agglutinins. Bodies present in the blood and possible other fluids of the body of an animal affected with or recovering from a specific infectious disease. When a small amount of the serum from such an animal is added to a suspension of the corresponding bacteria, the organisms will become agglutinated into clumps and precipitated.

Precipitins. Substances found in antisera which have the property when brought in contact with its specific antigen, of causing a cloudiness or precipitate.

The above-mentioned hypothetical bodies are present to some extent in normal serum. Infection, natural or artificial, tends to increase the amount.

In order to afford convenience in their description, the biological products used in veterinary practice may be classified into the divisions—vaccines, including bacterins or bacterial vaccines—antisera, toxins.

VACCINES.

Anthrax Vaccine. Probably the first biological product used to any extent in veterinary medicine was Pasteur's Anthrax Vaccine. Pasteur in 1880-82 elaborated a method by which a mild form of anthrax could be given to an animal, which rendered them resistant to a subsequent inoculation with the specific virulent bacteria. He found that the continued growth of the anthrax organism at 42-43 degrees caused them to lose their ability to produce spores and also gradually to lose their virulence. This method, but slightly modified, is probably the most important at present. It is a double vaccine, that is, it consists of two strengths of virus, No. 1 being weaker than No. 2. In the preparation of the product the anthrax organisms are grown on agar or in bouillon at a temperature of 42 degrees for a period ranging from 10 to 20 days. In the case of vaccine No. 1, it is usually incubated about 20 days. The resultant growth of the organism is then suspended in normal salt solution, or other liquid and tested for activity and safety. Mice, guinea pigs and rabbits are used in these tests. A satisfactory test should show that vaccine No. 1 in small doses should kill mice, but not guinea pigs or rabbits. Vaccine No. 2 in the same dose should kill mice and guinea pigs, but not rabbits.

In administering the vaccine, about 1 c.c. of vaccine No. 1 is injected subcutaneously. Ten or fifteen days later the same amount of vaccine No. 2 is given. The vaccine should be used only on healthy animals, for if an animal is infected at the time of treatment, the vaccine being a virus, will tend to aggravate the condition and result fatally. Not infrequently the vaccine will produce a severe or fatal reaction in a normal animal. The results from the use of this vaccine indicate that it is of great value in dealing with anthrax, if properly prepared and administered. The fact, however, that it is an attenuated but living virus, should always be kept in mind, for by its promiscuous and reckless use it may be the means of spreading the disease instead of curbing it.

A product consisting of the protective and immunizing properties of the anthrax bacteria, but the organisms themselves being destroyed, is on the market. It is much safer to use than the Pasteur vaccine and the results obtained from its application seem to be quite satisfactory. This preparation is put up in pellet form and is easily and conveniently applied.

Blackleg Vaccine. This vaccine, which consists of the attenuated blackleg organisms, may be a single vaccine conferring immunity by one inoculation or a double vaccine, which requires two inoculations to produce successful results. The strength of the single vaccine is about half way between that of the first and second of the double.

The product is prepared from the affected muscle tissue of animals dead from the disease. The muscular tissue containing the organisms is thoroughly dried and ground to a powder. Usually a sufficient amount of sterile water is added to the powder to produce a paste of the consistency of soft putty. The material is then subjected to a temperature of from 90 to 100 degrees for six or eight hours. The degree of heat used in the preparation of the vaccines is used as a basis for differentiating them into single and double vaccines.

Both single and double vaccines are marketed in the powder or oid or pellet form, the latter having been first suggested by Houghton in 1898. There is practically no difference in the efficiency of the powder and oil forms; the oil form, however, seems to be more popular, as it is convenient to administer and assures accuracy of dosage. The double vaccination is recognized as giving a greater degree of protection, and it is especially recommended for pure bred stock and animals in poor physical condition. The vaccine is injected subcutaneously, any region being used, the neck, tail, ear or brisket. It is of course quite essential to disinfect the site of the injection, also to have the needles and syringes as nearly sterile as possible.

The duration of immunity produced by the vaccine is of varying length. The younger the animal the shorter seems to be the period of immunity. Calves under a year old should be vac-

cinated frequently, every three to four months if possible. After one year of age vaccination gives protection for five or six months. Cattle older than two and a half years very seldom need to be treated, especially if they were vaccinated when calves. As the vaccine produces immunity by giving the animal a mild form of the disease, it is advisable not to vaccinate if the animal is already exposed or suffering from the disease. Nor should they be vaccinated if they are suffering from any debilitating disease or in poor condition resulting from shipping, driving or lack of feed or care. Vaccinating at the time of dehorning or castrating, or during cold or stormy weather, is not recommended.

Blackleg vaccination is now generally recognized as an efficient and reliable means for the prevention of blackleg. It has done much towards reducing the prevalence of the disease. Occasionally an animal treated with the vaccine dies from the results of the inoculation, but the number of such fatalities is so small as to become a negligible quantity when compared with the great protective value of the vaccination.

Rabies Vaccine. In 1885 Pasteur devised a vaccine for the prevention of rabies in the human which has given very satisfactory results. Owing to the complicated nature of the treatment, it has not been employed in veterinary medicine until quite recently. The treatment consists of a series of vaccinations with rabies virus of a known degree of attenuation. In the preparation of the vaccine, rabbits are inoculated with a fixed virus, that is one that has reached its maximum degree of virulence for the species. Death usually occurs in the rabbit in six or seven days. Its spinal cord is then removed in its entirety and submitted to a process of desiccation by suspending it over caustic soda or potash at a temperature of 22 c.c. for a definite period. In administering the vaccine the patient is first given an injection of the virus that has been attenuated for a week or more. Each succeeding dose consists of virus that has been attenuated less and less until the animal has reached such a stage of immunity that it can withstand unattenuated virus.

Reports indicate that the method is attended with the same degree of success as in dealing with rabies in man.

Tuberculosis Vaccine. Among the various vaccines that have devised for animal tuberculosis, perhaps von Behring's bovovaccine is the best known. It consists of attenuated tuberculosis organisms, usually the human variety. The commercial product is prepared by using a weakened culture of the organism, which is grown on suitable media, carefully dried at a temperature which will not destroy its activity and finely pulverized. It is then accurately weighed out into containers and sealed. The practical value of this product is rather doubtful.

Bacterins. (*Bacterial Vaccines.*) Bacterial vaccines are biological products of comparatively recent origin. They consist of dead pathogenic bacteria suspended in normal salt solution, standardized by determining the number of bacteria per centimeter of suspension, and are administered hypodermatically. Their therapeutic effects depends upon the fact that they increase the opsonins in the blood. When a bacterial vaccine is injected into the tissues of a patient suffering from an infection of the corresponding live organism, the formation of the special opsonin having the power of reparing that bacterial species for phagocytosis is stimulated. In veterinary medicine bacterial vaccines are used chiefly for the treatment of suppurative conditions. The vaccine may be monovalent, that is contain but one strain of bacteria, or polyvalent, containing two or more strains. They may be prepared from cultures obtained directly from the disease processes of the patient, in which case the vaccine is called a personal or autogenic vaccine, or similar organisms obtained elsewhere may be used These latter are known as stock vaccines.

Bacterial vaccines are indicated in strangles, influenza, puerperal fever, erysipelas, fistula, quittor, abscesses; in fact all infectious diseases or conditions due in main or in part to any of the staphylococcus or streptococcus organisms. They may be used advantageously in pneumonia and colon infection.

As cases vary in character and extent, no hard and fast rule of dosage can be laid down. The clinical symptoms should be the guide as to the size of doses administered. 150,000,000 organisms may be considered an average initial dose, the dose

being increased as treatment is continued. Injections should be repeated at intervals of from three to seven days, as indicated by the symptoms. If there is an aggravation of symptoms either local or constitutional following an injection, further treatment should be withheld until they have subsided.

The results obtained by the use of bacterial vaccines, properly prepared and administered, are indeed gratifying. Many stubborn suppurative conditions, such as fistulous withers, poll evil and quittor, which do not yield to ordinary surgical and medicinal treatment, are benefited and completely cured by bacterial vaccines. Febrile disorders due to bacterial infections, in many cases respond to bacterial therapy and make rapid recoveries.

ANTISERA.

Tetanus Antitoxin. As mentioned before, an antitoxin is a reactive substance developed in the blood of an animal injected with toxin. Tetanus antitoxin is one of the best known of the standard antitoxins. It consists of the serum of a horse which has acquired a high degree of immunity to tetanus by repeated injections of the specific toxin.

In tetanus the specific organism remains localized at the point of infection. Multiplication of the organisms take place at this point, with the production of their powerful toxin. The toxin has special affinity for nerve tissue, and is supposed to be absorbed by the nerve endings with which it comes in contact and conveyed by the nerves to the central nervous system. The expected action of any antitoxin is to neutralize or render harmless its specific toxin. In the case of tetanus antitoxin this result can only be accomplished before the toxin is fixed in the nerve tissues. Therefore, the administration of tetanus antitoxin should begin as soon as possible in order to accomplish the best results.

As a prophylactic agent against the disease this product is now generally recognized as a specific. It is especially indicated in the treatment of animals affected with wounds, such as nail pricks and punctures, the nature of which are conducive to the development of the tetanus organisms. Many operators will not undertake an operation of any consequence without first admin-

istering tetanus antitoxin. The immunizing dose of this product is about 1,500 units.

Good results have been obtained with the antitoxin in many cases as a curative for the disease, especially in mild cases. As a curative it is given in larger doses and repeated, each dose containing at least 3,000 units given every three or four hours until the symptoms show abatement.

The immunity produced by tetanus antitoxin is of course of a temporary nature.

Influenza Antitoxin. The so-called influenza antitoxin, which consists of the serum of an animal recovered from an attack of influenza, has, according to many practitioners, given excellent results in immunizing against influenza and kindred affections.

Antistreptococcic Serum. This is serum from a horse which has been immunized to killed cultures of the streptococcus organisms. Frequently several different strains of the organism are used. It has given fairly good results in many cases of streptococcus infection.

Antihog Cholera Serum. This product devised by Dorset and Niles is at present probably the most reliable biological product for combating hog cholera. Hogs which are immune to cholera either through natural immunity or artificial immunization, are used in the preparation of the serum. These hogs are hyperimmunized by the injection of a large amount of the hog cholera virus. The intravenous method of injecting the virus seems to produce a more potent serum with a smaller amount of virus than is the case with either the subcutaneous or intraperitoneal method. About ten or fiteen days after receiving the virus the animals are bled from the tail, each succeeding bleeding being at intervals of a week. The blood is defibrinated and tested for potency. This defibrinated blood constitutes the hog cholera hyperimmune serum.

There are two methods of administering the serum in the field, one known as the "serum alone method" and the other the "simultaneous method." In the former method the serum alone without any virus is injected. This method produces a

temporary or passive immunity, the duration of which does not exceed a period of probably a month or six weeks. In the simultaneous method a small amount of disease producing blood or virus is injected with the antiserum. This method is of the nature of a vaccination producing an active or more lasting immunity than that produced by the serum alone method.

The serum alone method is indicated in herds which have been infected or are in close proximity to infection. The simultaneous method in herds which are free from the disease. The dose of the serum is from 20 to 40 c.c. per hundred weight.

The serum gives good results, especially as a prophylactic for the disease, provided it is properly prepared and administered.

Antianthrax Serum.—This serum is used to some extent in immunizing against anthrax, especially when an immediate protection is desired. The serum is prepared by hyperimmunizing animals, usually sheep, first by injecting weakened cultures of the anthrax organisms, then by more virulent cultures. The serum from an animal so treated constitutes the antianthrax serum. The immunity produced by this product is of a temporary nature, but seems to be of sufficient length in many cases to protect the animal until it can be actively immunized with the Pasteur Vaccine.

Dawson has obtained very good results with the anti-anthrax serum, especially when it is used in conjunction with the vaccine.

Biological Diagnostics.

Tuberculin is probably the most extensively used biological diagnostic agent in veterinary practice. It consists mainly of the products of the tuberculosis organisms grown in 4 per cent. glycerin bouillon. Many types of tuberculin have been produced by various workers, but the two known as "Koch's Old" and "Koch's Purified" are of special concern to the veterinarian.

"Koch's Old Tuberculin" is prepared by inoculating flasks of 4 per cent. glycerin bouillon with the tuberculosis organisms, incubating for a period of from six to ten weeks or longer. After the growth is complete the cultures are sterilized and then evapo-

rated over a water bath to one-tenth the original volume. The bacteria are removed by passage through filter paper and Berkefeld filter. The dose of the concentrated tuberculin is 0.25 of a c.c., but owing to the material being of a syrupy consistency and the smallness of the dose, it is diluted with 7 to 9 times its bulk with 2 weak solution of carbolic acid before being used. This is the tuberculin employed in the ordinary subcutaneous test.

Koch's Purified Tuberculin consists of the precipitate which results from adding several volumes of absolute alcohol to the "Old Tuberculin." The precipitate is washed and dried. Before use the dried tuberculin is diluted in water or glycerin. This product is used in the ophthalmic test.

The technique involved in applying the tuberculin subcutaneous test is familiar to all and need not be mentioned here.

The ophthalmic or Calmette test has recently come into use more or less extensively. It consists of instilling a small amount of the purified tuberculin into the conjunctival sac. A positive reaction is characterized by a marked hyperemia of the conjunctiva in from five to ten hours after the application of the tuberculin. At present this test is not considered as reliable as the subcutaneous.

The tuberculin test has proven to be of great value in detecting tuberculosis and if it is honestly and intelligently applied can be considered sufficiently reliable to be depended upon in every case.

Mallein.—This biological product consists of the glycerinated bouillon in which the glanders bacteria have grown and in which are contained the products resulting from their development. It is prepared and used in a similar manner to tuberculin. In the case of a positive reaction with Mallein there is in addition to the elevation of temperature more or less local and sometimes constitutional disturbances.

Mallein is recognized as a fairly efficient agent in dealing with glanders. If the operator is familiar with all the details of the test and capable of interpreting the results, its usefulness cannot be doubted.

Reaction sometimes fails in advanced cases of the diseases, but in such cases the symptoms are usually diagnostic. If a primary test leaves the matter in doubt, the animal should be retested in a month or two.

Agglutination Test Fluid.—The agglutination test for the diagnosis of glanders has been used for several years and with reasonably good results. This test is based on the fact, as previously mentioned, that in the case of glanders as well as some other diseases, there is developed in the blood, antibodies known as agglutinins, which have the power of clumping and precipitating the specific bacteria of the disease. The test fluid or suspension containing the glanders bacteria is prepared by inoculating acid glycerin agar with highly virulent cultures of the glanders organisms. After 24 or 48 hours' incubation the resultant growth is removed from the media by adding a quantity of normal salt solution. The suspension is heated to destroy the organisms and then diluted to the desired density.

In applying the test, serum from the suspected case is added to the test fluid, several dilutions being made. Usually the dilutions prepared are 1 part of serum to 800 of test fluid, 1-1200, 1-1500 and 1-1800. The reason for making such high dilutions is that normal serum frequently contains a sufficient amount of agglutinins to cause the characteristic reaction in dilutions as high as 1-500 or 800, so that in order to make the test or diagnostic value much higher dilutions must be employed. After the dilutions are prepared they are incubated for 24 or 45 hours. A positive reaction consists of a clumping and precipitating of the organisms in the test fluid, so that the fluid will have lost its turbidity and be perfectly clear. The clumped organism will have settled in a mass at the bottom of the test tube or container. A positive reaction in dilutions of 1-1200 or higher is indicative of glanders.

This method is an accurate means of diagnosis if proper care is used in making the test. It is of great value in conjunction with the mallein test, especially in those cases which are considered doubtful. It is important that an active suspension be employed for the test in order to obtain reliable results.

Mallease.—Mallease is a preparation used in the precipitin test for the diagnosis of glanders. It is prepared by dissolving the glanders bacteria in a 7 or 8 per cent solution of antiformin, neutralizing the solution after 2 hours with 5 per cent. sulphuric acid and then filtering through paper and Berkefeld filter. The active principal of the solution is known as precipitinogen, which has the property of combining with the antibody, precipitin and forming a precipitate. According to Konew, who devised the precipitin test for glanders, the formation of precipitins in the fluids of the body begin at the time of the entrance of the infectious agent, which apparently indicates that the test should be valuable in detecting the disease at the onset. To carry out the test 1 c.c. or any small amount of the mallease is placed in a slender test tube. Then about the same amount of the serum under test is taken in a pipette, which is inserted into the mallease solution until it reaches the bottom of the test tube. The serum is permitted to escape slowly under the mallease so that the two will not mix, a sharp line of separation dividing the two fluids. If the serum is from a glanders animal a precipitate, in the form of a white ring, will appear at the line of separation, the density of the ring, and the time necessary for its formation usually depending upon the severity of the case. The precipitate is the result of the interaction of the precipitin in the serum and the precipitinogen contained in the mallease. The time required for the test varies from a few minutes to an hour or more.

This test gives fairly uniform results in practice, although occasionally the ring which forms is rather indistinct and leaves the operator in doubt as to the diagnosis. Field experiments with the test conducted by our laboratory, show that in the majority of cases it confirms the results of the mallein and agglutination tests.

The *complement fixation* test that has been recently employed for the diagnosis of several animal diseases, particularly glanders, is dependent on several products of biologic origin. For the glanders test they would be an extract of the glanders organism (antigen), the blood of a rabbit which has been immunized to

the washed red corpuscles of a sheep (hemolytic amboceptor), normal serum of a guinea pig (complement) and washed red corpuscles of a sheep. The test is based on the phenomena of hemolysis and bacteriolysis and is of such a complicated nature that it must necessarily be a laboratory test. In substance the test may be briefly described as follows,—the specific immune bodies, (bacteriolytic amboceptor) in the serum of glandered animals combined with the antigen (glanders bacilli extract) and the complement. When the hemolytic amboceptor and its antigen (red corpuscles) are added later, no hemolysis will take place because one of the factors (complement) necessary to accomplish this is not available, as it has combined with the glanders antigen and bacteriolytic amboceptor. On the other hand if the serum under test is from an animal free from glanders, it will not contain the bacteriolytic amboceptor, and the complement will be free to unite with the hemolytic amboceptor and antigen, with the result that hemolysis will occur as evidenced by the liberation of hemoglobin in the fluid.

This test is recognized by some authorities as being the most reliable method for the diagnosis of glanders. It is used to some extent in the detection of contagious abortion in cattle.

The above list includes the principal and most practical biological products used in veterinary medicine at the present time. Since their advent they have aided materially in the diagnosis, prevention and treatment of many of the specific infectious diseases of animals and have enabled the veterinarian to accomplish better results in his fight against disease than was possible with some of the former methods of treatment, which were more or less empirical in nature.

If medical research is as fruitful in the future as it has been in the past, it would seem that the time is not far distant when practically every form of infection can be successfully combated with a biological specific.

New York State Fair and Horse Show, at Syracuse, September 9 to 14.

THE VETERINARIAN IN RELATION TO PUBLIC HEALTH.*

By Harold E. Stearns, D.V.S., Arlington, N. J.

The problems which are arousing the greatest interest in the veterinary profession to-day, are those which relate to the control and eradication of the various infectious diseases of animals and to the safe-guarding of the meat and milk supply of the nation.

In making this statement, it is not intended to detract from the importance of those subjects which relate essentially to general veterinary practice, or to the man who specializes in them; the humane service that he renders in alleviating the sufferings of our dumb animals and his economic value in preserving the life and usefulness of man's most faithful and efficient servant, the horse, from diseases not due to infection is sufficient in itself to have earned for him the gratitude due a real benefactor of both man and beast.

It is nevertheless the fact that the achievements of the veterinary profession, which will bring to it the greatest measure of honor and distinction, will be those of the future along sanitary lines.

Primarily a healer of the diseases of animals, occupying in the public estimation a position of importance measured by the value of the animal under treatment, permitted under the law, until recently, to practice without any scientific training whatever. even in the most advanced communities, and still permitted to do so in some states, to the lasting shame of those responsible, the veterinarian has never received the respect and distinction accorded the practitioner of human medicine, upon whose skill and scientific attainments the preservation of human life was thought in a large measure to depend.

* Presented to the Veterinary Medical Association of New Jersey, at Jersey City, July, 1912.

It is only of recent years that the close relation which exists between many of the diseases of animals and those of human beings, and the importance of the veterinarian as the guardian of the public health from this standpoint has been given serious consideration, even in scientific circles, and the ignorance of the general public of the sanitary work now being done by veterinarians and the sphere the profession is destined to occupy is incredible.

The efforts of the first organized health boards were directed against the more obvious causes of high death rates, such as cholera, yellow fever, smallpox and the various plagues; with the acquisition of the knowledge of the cause and prevention of these diseases and their consequent control, the sanitarians have been directing their energies to the control of the more insidious diseases, which, while not so spectacular and terrifying as the plagues of old, take, nevertheless, their yearly toll of thousands of human lives, and to-day every factor which may possibly contribute to increase the death rate and impair the general health, is receiving the careful scrutiny of scientific minds.

The number of veterinarians now employed by civil, state and municipal governments, as sanitary officers in different capacities, is very great, and as the science of sanitation advances and becomes more specialized, the services of the veterinarian, as a sanitarian, equipped for his duties by education and training, as he has never been before, will be considered absolutely indispensable. The city of New York now requires from every dairyman bringing milk within its limits for sale, unless from a tuberculin-tested herd, or exclusively for manufacturing purposes, a certificate from a graduate veterinarian, that his herd has been examined physically, all diseased animals excluded, reported to the state authorities and proper disinfection done. As the milk supply of this city comes from many different states, and represents approximately 2,000,000 quarts a day, it will be seen that employment will be given many graduate veterinarians. The difficulties of making an accurate diagnosis by physical examination are very great; but if the examinations are made conscientiously, a splendid opportunity will be given a great number of men to

perfect themselves in this mode of diagnosis and also of exercising their function of educators by instructing the dairymen of the importance of interior stable construction susceptible of disinfection, which many of the old barns are not.

It is known that a multitude of diseases of animals are communicable to man, that many of them, if not promptly controlled, while not necessarily causing death, would seriously affect human health, and that one, at least, tuberculosis, is responsible for the deaths of many thousand human beings yearly. The task of controlling and if possible eliminating this source of human infection, rests principally with the veterinary profession. All other things excluded, the successful accomplishment of this duty would justify its existence.

The rapid increase of this disease among animals, the wide diversity of opinion as to the methods of control which should be pursued, the adoption and subsequent abandonment, as impracticable, of various systems of eradication, all indicate the magnitude and difficulties of the problem, and learning from the experience of the medical profession, in its efforts to control human tuberculosis, it is safe to conclude that the subject must be approached from many different standpoints, giving opportunity for the intelligent co-operation of the veterinarian, the farmer, the consumer, and the commonwealth. It has been said that public health is purchasable; this is especially true of public health as influenced by animal disease. The willingness of the consumer to pay the additional price of milk from tuberculin-tested herds, and of the commonwealth to liberally share with the farmer the losses entailed in eliminating the reactors, will have much to do with its ultimate control.

The opinions of prominent investigators expressed at the Seventh International Tuberculosis Congress, held in Paris this spring and transcribed from the pages of the AMERICAN VETERINARY REVIEW, indicate that bovine tuberculosis is transmissible to man, especially children; that about 10 per cent. of the cases of human tuberculosis proceed from an infection by bovine tuberculosis; that while the majority of cases of human tubercu-

losis proceeds from contagion between human beings, it is necessary to maintain entirely, and even increase the precautionary measures already taken against bovine tuberculosis. These words are a call to arms, to the veterinarians of the world, and will arouse them to greater and more united efforts against this disease, as well as to awaken health authorities and the general public to the need of more effective regulations, and of scientifically-trained veterinarians for their enforcement.

Thousands of infants are sacrificed each year through the use of filthy milk, so dirty in the past, that an authority has stated that a sample of market milk taken a few years ago in one of our large cities contained more bacteria per cubic centimeter than the city sewage. Such conditions, fortunately, are things of the past; but the crusade for wholesome milk is nevertheless in its infancy. Involving in its production and distribution so many difficulties, depending so much upon the intelligence of the producer, the guarantee of its purity and wholesomeness must needs be a function of the government. Only graduate veterinarians from approved colleges are considered competent by the United States Government to pass upon the wholesomeness of meat, which no less an authority than Dr. Evans, ex-Health Commissioner of Chicago, and one of the foremost sanitarians of the day, says, in substance, kills a few people yearly, where unwholesome milk kills thousands. How, then, can anyone, but a veterinarian, be considered fit to adequately perform the duties of a dairy inspector? In addition to his definite knowledge of the diseases of cattle, of stable sanitation, of milk from the standpoint of a laboratorian, all essential, he is in a position to command the respect and attention from the dairymen, due and given only, a professional in the campaign of education so necessary in this question of pure milk. A layman who has qualified for the position of dairy inspector, by having passed a civil service examination, involving the correct answering of a few stereotyped questions, and possessing no scientific knowledge of the subject which he is expected to teach, can do and frequently does, as I know from personal knowledge, more harm than good. The produc-

tion of wholesome milk so essential to the public health, is acknowledged to depend more upon cleanly careful methods of handling, than upon expensive equipment. The encouragement of a higher price is probably necessary to arouse the producer to the greater effort necessary, but those who are ignorant of the ease with which milk is contaminated in every step from the udder to the sealed bottle, and there are many, need careful and authoritative instruction, and I venture to repeat that no one is so well qualified to give it as the veterinarian, and I believe it is he who will eventually be called upon, almost exclusively, for this service.

An authority on human tuberculosis of national reputation recently stated that one of the most important factors in the crusade against that disease was the elevation of the index of resistance of the individual. Of probably more importance than any other thing in its accomplishment, is an abundance of nourishing food, meat and milk. The efforts, therefore, of the veterinarian, in stimulating the breeding interests, as he is doing in the south, in eradicating Texas fever, and all over the United States, in laboratory and field, by continually minimizing the losses due to the many destructive infectious diseases of flesh-giving animals, bear a direct influence upon the public health through the abundance of the food supply.

The newer methods of laboratory diagnosis of glanders, the reliability of which has been demonstrated beyond question, will, if used for legitimate purposes, be of immense value in controlling and eradicating this disease. The number of humans who die each year from glanders is relatively small; but as a disease infectious to human beings, usually terminating fatally, and most often claiming as its victims, veterinarians, it may properly be referred to in this paper. The attitude of the practitioner towards glanders is a factor of greater importance in its ultimate control than in any other infectious animal disease with the possible exception of tuberculosis. Such diseases as anthrax, hog cholera, rabies, black-leg, Texas fever and many others, have a rapid and usually fatal termination and produce symptoms and conditions

which would obviously prevent any extensive traffic in the affected animal. Glanders, on the contrary, slightly impairing in many instances, the commercial usefulness of the animal affected, and causing symptoms easily overlooked by the laity, is spread from state to state through the traffic in latent and chronic cases. Judging from statistical reports there are many sections of the United States where glanders is practically unknown, and it should be the object of every veterinarian to prevent its introduction into these territories.

With the practical demonstrations which have been given of the possibility of its eradication through the means of suitable measures of control, a heavy responsibility rests upon the practitioner to report to the proper authorities every case with which he comes in contact, be it latent or active, letting the responsibility for any neglect to make use of all known precautions against its spread rest with those who are intrusted with the administration or enactment of the law. Such responsibility cannot be long evaded if veterinarians individually and collectively through the medium of their societies use their influence in proper channels.

This statement applies generally to all infectious diseases of animals. While the law in many states requires the reporting of infectious diseases by any citizen who may be aware of its existence, failure to do so is often the case through ignorance of the law or because of a lack of a due sense of responsibility. This cannot be the case with a graduate veterinarian and so far as it relates to the non-graduate, ignorant and often unmindful of the law, owing no responsibility to Alma Mater or Veterinary Medical Association, one of the best reasons exists for the legal prevention of his practice.

The practitioner is the wire completing the circuit between infectious disease and the legal machinery for its suppression. Let him fail in any respect in the performance of this duty and the most effective laws are nullified, and where none exist the day of their enactment is indefinitely postponed, giving opportunity for infectious disease to obtain a foothold, which will not be easily uprooted. In sanitary medicine, the old adage: "An ounce of prevention is worth a pound of cure," has especial application.

The interchange of visits at medical society meetings between veterinarian and physician is a practice which should be more generally followed. The veterinarian by attendance and participation at the meetings of associations for the control of tuberculosis, at city milk committees and kindred bodies, will learn much of value to him in the performance of his duties as a public health officer and practitioner, and the leading physicians and sanitarians of whom these societies are usually composed, will be favorably impressed by the interest shown in sanitary medicine by the veterinary profession. For the same reasons, the reading of papers by physicians upon subjects of common interest at veterinary society meetings is greatly to be desired. The mingling of the two professions in a field of common endeavor will do a great deal to wipe out the prejudice of the medical profession against the veterinary profession by giving its members opportunity to judge by personal contact and observation of the class of men who are striving for the advancement of their profession and of their fitness to take a prominent part as co-workers in sanitary reforms. The good that the veterinarian can accomplish. especially in sanitary matters, depends greatly upon the degree of confidence reposed in him by the public, and this is measured by his ability and honesty. Every act of the individual, be it honorable or otherwise, efficient or inefficient, redounds to the credit or discredit of the profession at large, strengthening or impairing that confidence. It is, therefore, the duty of every veterinarian, putting all personal considerations aside, to refrain from any act which would tend to lower the standard of the profession or to impair the growing confidence in it, and to keep abreast of the advances in medicine and sanitary science, to the end that his profession may attain that high place of honor among the learned professions to which its legitimate functions entitle it.

OPENING FOR FIRST-CLASS VETERINARIAN: Welch, W. Va., wants to get a first-class veterinarian to locate there. Address I. J. Rhodes, Cashier, McDowell County National Bank, Welch, W. Va.

STUMBLING.*

By James McDonough, D.V.S., Montclair, N. J.

The horseshoer and veterinarian, when trying to stop a horse from stumbling, have the time of their lives trying to keep the one from trespassing upon the domain of the other. This is probably due to the fact that neither is quite sure where the duties of the one begins and the other ends. So I trust that the two will pardon me if while trying to say a few words to both I fail to arrange my subject in a way that is clear to either.

As the task of overcoming the fault of stumbling required not alone the skill of the veterinarian, but also the practical knowledge of the shoer, I will not attempt to divide their responsibilities while allowing them to share the honor.

While working at horseshoeing I often felt like saying to veterinarians what I am going to say to you now. When treating a lame or stumbling horse, if you order a shoe of special design, know what you want and know when you get it, then stand for the results; don't shift the blame upon the shoer.

The term "stumbling," as applied here, is misleading, as it would lead one to believe that the cause existed in the free limb, while as a matter of fact it will be found to exist in the fixed or supporting limb. We have different kinds of stumblers. Some horses will make what we call a "miss step"; some will fall to the extent of striking one or both knees against the ground, while others will plunge forward, striking their nose and face, or even the top of their heads. While this difference in stumbling is merely one of degrees, it nevertheless is deserving of attention. When a horse stumbles, the toe of the free limb comes in contact with the ground at a time when it is being extended or carried forward as shown by the mark found upon the hoof at that point.

* Read before the Veterinary Medical Association of New Jersey, at Jersey City, July, 1912.

Therefore we have always been led to believe that it was caused by the horse carrying his foot too close to the ground, and for this reason shod him with one of two objects in view., *i.e.*, increase his action by applying a heavier shoe or shortening the toe by rasping away the hoof at that point.

When we now fail to stop him, as we usually do, we remind the owner of the old adage,—"Once a stumbler, always a stumbler." But let us return and try to determine the cause of the difference in the degree of stumbling. The first thing noticeable is the difference in the marks found on the front of the hoof. Upon the hoof of the animal that made what we called a "miss step," you may not find any mark, but a little earth on the toe of the shoe. An examination of the hoof of the animal that nearly fell will show a mark extending nearly the entire length of the toe. While the animal that fell will not only show a mark extending the entire length of the hoof, but also into the coronet above and oftentimes to the front of the ankle joint. This animal, while falling, may be seen to make one or more desperate efforts to regain his feet. His expression shows fear and excitement. The free limb, the one he was carrying forward at the time he stumbled, now seems to be fast and in a position where he cannot possibly extend it. It was fast from the beginning, otherwise his first efforts to extend it would have been successful, as was the case with the preceding animals. To those who have watched a stumbling horse fall it became evident that the limb was forced into a position where the animal was powerless to release it. This could only be accomplished by the animal's weight having been thrown upon that side before the limb had reached a position to receive and support it.

As the fixed limb is intended to support all of the weight of the front part of the body until the extension of the free limb is completed, its failure to do so, as shown by the animal whose free limb was forced against the ground, should influence one to look there for a cause, where we will usually find it.

If, when riding behind a frequent "stumbler" we closely watch the supporting limb, we will notice a slight flexion of the

knee just as the animal stumbles. This is caused by the presence of some condition, either pathological or mechanical, that renders the limb unable to support the body weight with comfort, and as a result it yields to the pressure and permits the body to drop to the extent of allowing the toe of the opposite limb to strike the ground when being carried forward. The consequence will depend upon the position of the free limb at the time the supporting limb gave way. Should the free limb occupy a position just anterior of the supporting limb, the animal will make a quick move and get it forward in time to catch and support the weight of the body. We call this a "miss step" or slight stumble, and a little dirt may be found upon the toe of the shoe. Should the free limb occupy a position in a line with, or slightly behind the fixed limb, a portion of the front part of the hoof will be forced against the ground and the animal's efforts to regain his feet will be unsuccessful to the extent of allowing one or both knees to become injured, and we call this a "stumbler." Should the supporting limb give away at a time when the free limb was about to be extended, the position it now occupies causes that part of the limb from the ankle down to be forced against the ground, making a mark, extending the entire length of the toe, also injuring the coronet and ankle joint. If we closely examine those injuries, we will often find they were caused by the foot having been forced in a backward direction or just the opposite to a condition that would be produced if caused by the animal pulling the limb forward. This animal will be seen to plunge and while falling make several efforts to free the limb. He usually goes down by plunging forward, and if the driver pulls hard upon the "lines" in an effort to hold him up he may prevent the animal from extending his neck and cause him to strike upon his face or even the top of his head.

When the free limb reaches the ground and becomes the supporting limb, its direction is oblique from above to below, and from behind to before. During the extension of the free limb the body is moving forward upon the supporting limb, which moves first to a vertical, then to an oblique position, from before

to behind. As his change in the position of the fixed limb takes place the work of supporting the body is transferred from one part of the limb to another, so that the part subjected to the greatest strain can be determined by the position of the free limb at the time he stumbles, and as the position occupied by the free limb can be accounted for by the degree of stumbling, we are led to believe that the supporting limb occupies a vertical position in all cases where the animal does not fall to the ground. This is usually caused by an unbalanced limb when the shape of the hoof or the position of the shoe is such as to force the ankle to either side. Of course, any condition that may render the limb unable to perform its work with comfort will cause a horse to stumble. But in either case whether caused mechanically, or by some abnormal or diseased condition of the limb, our one object must be to change the weight to some other and stronger part. When it is caused by an unbalanced foot remember what was said upon the subject of interfering. If the ankle is inclined to the inside, increase its support in that direction by widening the shoe upon that side, when it will be found that the condition has been relieved. If not entirely corrected, and we dare not widen the shoe further to the inside, we will then fit it narrower upon the outside until the condition is entirely corrected.

When a horse loses all control of himself and falls, I do not believe that it is caused by any faulty condition of the limb, which seems to give way at the time it first comes in contact with the ground, and is probably caused by the animal stepping upon a loose stone or into a hole.

It is probable that 90 per cent. of all stumbling is caused by an unbalanced limb, for when a diseased condition is present it is likely to cause lameness and lame horses are not always "stumblers," for the animal will save the affected limb while traveling by preventing, to some extent, the weight of the body coming upon it by holding his head and shoulders up when that foot comes upon the ground, while the head and foreparts will be allowed to drop when the weight comes upon the good limb.

As many methods are employed by different people to balance

the limb a few words upon this subject may be excusable. At every step when the weight of the body is transferred from one front limb to the other the body is falling and nothing but the timely arrival of the opposite limb to a position where it can catch and support it will prevent its falling to the ground.

The limb was intended to perform this work and nature provided it with the necessary strength, not alone while in a given position, but so arranged and adjusted its many parts as to permit of a change in its position without detracting from its strength or comfort.

Inasmuch as we are now trying to adjust the parts in a way that will stop stumbling and not for the purpose of relieving lameness, there are some things that I wish to make plain. First, that the ligaments play a very important part in preventing or at least limiting motion of the joints to either side, while permitting in many cases extreme flexion and extension, while the muscles and tendons have full control over flexion and extension. Second, that the ligaments are non, or very slightly elastic and unable to adjust themselves to an abnormal position, while the tendons which are a continuation of the muscles possess the advantage oftentimes of being able, through the medium of the muscles, to adjust their length to the extent of escaping injury.

When the extended limb first receives the weight of the body, the direction of the weight is from above to below and from before to behind with a tendency to force the limb backward and downward and in the direction of the very strong and more or less elastic organs found there. The foot being fixed upon the ground, as the body moves forward, the direction of the limb approaches a vertical position and the weight now passes through its center and through that part of the foot known as the quarters. It has now reached a position where the quarters must be depended upon to support it upon either side, and if for any reason insufficient support is given to the one side, the limb will suddenly be displaced in that direction, and the injury to the ligaments will often compel the animal to yield to the increased strain.

While considering the limb in a vertical position, if the distance of the two heels from the center of the frog is not equal, the limb will drop in the direction of the narrow side. This also applies to pads, for if the center of a pad is not under the center of the frog, the limb will be inclined to the narrow side. It does not make the slightest difference how wide the pad is on the one side if the other side is wider it offers more support to that side of the limb and will cause it to lean in the direction of the opposite side, where it receives the least support.

So far as I know one has to depend entirely upon his eye when balancing a limb. The custom is to measure the foot at several places, but as the position of every part is dependent upon its shape, it leaves us without any fixed point from which we can take measurements. The better way is to pick up the opposite foot, thereby throwing all of the weight upon the limb to be corrected, and if the ergot found back of the ankle occupies a position directly over the depression between the bulbs of the heels, we can feel that the work of the limb is properly distributed.

Stumbling behind (breaking over) is usually caused by some condition existing on the inside of the hock joint that renders it unable to perform its work with comfort, and can often be accepted as an early symptom of an approaching spavin.

In most cases, the foot will be inclined to the outside, thereby increasing the work on the inside of the hock joint.

I have tried many different methods of shoeing to overcome stumbling behind, and have had the most success with a long shoe provided with low heels and toe, with a calk situated at either side under the quarters. When fitted, if the foot is inclined to the outside, it might be well to fit the shoe full on that side, or narrow on the inside.

THE CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION will hold its next meeting, September 11, 1912, at Fresno, and a large attendance of the members of this progressive organization is anticipated.

THE BROADER FIELD OF THE VETERINARIAN.*

By A. Joly, D.V.S., Waterville, Me.

The veterinarian of to-day has a vast field of operation, when one stops to consider the different important questions he is called upon to solve.

I will not take up your time in reviewing with you what the veterinarian has achieved in this great country of ours, neither shall I bring before you the different specialties embraced by the veterinary profession all through the United States; but I wish to call your attention to certain daily work which belongs to us, that is to say, of different problems which the veterinarian of Maine should emphasize to the public as being the best qualified citizen to handle. What are the positions in Maine which should be filled by the veterinarian?

1. That of Live Stock Sanitary Commissioner. 2. One member of the State Board of Health should be a veterinarian. 3. All cities should have a veterinarian on their Boards of Health. 4. Milk inspectors should be veterinarians. 5. Judges of live stock at our State Fairs should be veterinarians. 6. Agents for the prevention of cruelty to animals should be veterinarians.

During my 22 years of practice I have been in contact with the veterinary profession of this state. I know its material, and it is with pride that I can say that the Maine Veterinary Medical Association can furnish men to fill the different positions that I have enumerated above.

Thirty-eight states out of forty-eight have a state veterinarian. For political reasons, it is assumed, our Governor has appointed a farmer as Live Stock Sanitary Commissioner.

Some two years ago at a conference on tuberculosis held at Augusta by the State Board of Health, three veterinarians were present, having been invited to assist in the study of this great

* Read before the Maine Veterinary Medical Association, at Augusta, April, 1912.

question of the " White Plague," thus recognizing the veterinarian as a sanitarian.

Having no special meat inspection in the state, it is up to the local Board of Health to stop the sale of diseased meat; again, how can it be properly done without the veterinarian?

The fluctuation of density and the amount of butter-fat of milk, caused by feeding different forage, cannot be better understood than by the veterinarian.

How much incompetency has been exhibited at the judging of livestock at our state fairs, by men prejudiced against certain breeds of animals, when a competent veterinarian would be above such criticism?

It is true we may find one or two local boards of health with a veterinarian, also two or three veterinarians as milk inspectors through the State. Once in a while a veterinarian is called to judge at our fairs, but this is rare.

I feel, fellow veterinarians, that it is up to us to make room for competent men. Get into politics, municipal and State politics; fight for what you think is right; subscribe liberally and take interest in all local enterprises, which aim at public welfare, such as the Anti-Tuberculosis Society, Good Government Association, etc., etc.

With pleasure I acknowledge the facts that the Maine Breeders' Association has for its president a veterinarian, in the person of Dr. John Ness; also the University of Maine has Veterinarian Russell as one of its teachers.

We have a society in the State, with which I have been connected for 20 years through our local organization, and it seems to me that it ought to appeal to every veterinarian. It is the *Society for the Prevention of Cruelty to Animals.*

We all agree that the state society has done and is doing great work; but I feel that the time has come where its executive agents should be in the rank of our profession.

During my connection with the Waterville society, I have come in contact with several state agents; and while these men and women are doing their best and are sincere in their efforts,

very few are competent to fill the office. I will cite a few cases which just come to my recollection to illustrate the incompetency of some agents.

In the town of M—— an agent notifies a person that his horse looks bad—old and weak—and in order to save trouble he better have him killed. The owner called a veterinarian, who found the animal thin in flesh very true, but properly cared for, and valued the beast at $75.00.

In the town of A—— an agent notifies a party that everybody is complaining of his old horse as having the glanders and he should have him killed before the society of the long name causes him any trouble. A veterinarian is called and no symptoms of glanders are found.

Some time ago a party from Freedom drove into Waterville with a very lame horse. An agent takes the team to a livery stable and the driver is arrested for cruelty to animals. I was out of town, and just before the court opened I was called to examine the horse. The agent under oath testifies as follows: describing the horse as being old, poor, hip knocked down, spavined and chest-foundered, and of course worthless. My testimony did not exactly agree with the agent's. The horse was twelve years old, of a nervous temperament, fair condition, and the lameness was caused by a recent interference. Horse valued at $100. The defendant was discharged.

Just one more case · One morning an agent is called to examine a horse which, during the night, had gone through the stable floor, on a pile of manure, and after vain efforts to get up where there was no chance nor room to stand up, one can easily make a picture of the animal. He was condemned and destroyed. The owner, during whose absence the incident occurred, sued the agent and got a verdict of $75.00.

I could cite you many other cases of incompetency which have been nothing else than an imposition upon the public and a great annoyance to individuals.

Now, I wish to explain to you the manner in which the Waterville society conducts its business, and I want to say right

here that every city or large center should have a similar organization.

Our society is composed of about 100 members, who pay annual dues of one dollar. It has a president, vice-president, a secretary, a board of five directors and one veterinarian.

Every member is an agent and his duty is to report to the president all complaints of cruelty. We have agents in something like 20 towns. All complaints are investigated by the veterinarian.

For the last ten years an average of 80 complaints per year have been attended to. An average of 20 horses a year have been bought by the society and humanely destroyed. The fees of the veterinarian are paid by Kennebec county, which is in accord with our state laws, for it is in the hands of the County Commissioners to fix compensations. Our bills have always been approved and many times we have received expressions of appreciation.

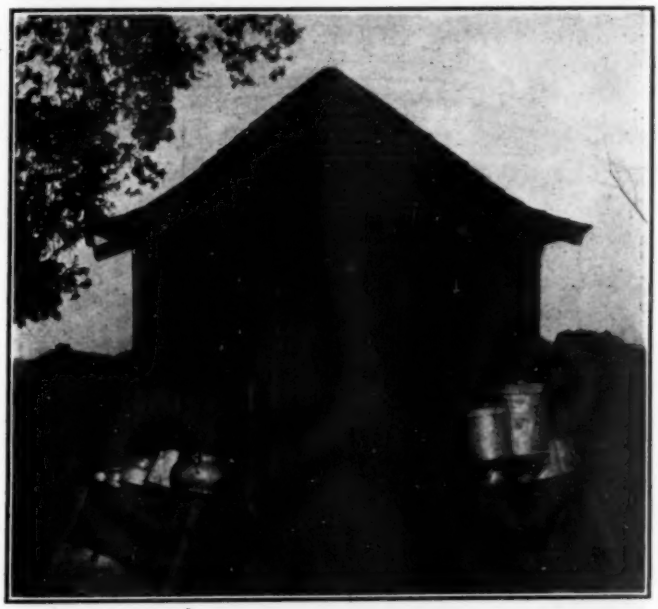
Negligence of proper care to animals is largely caused by ignorance and poverty. Our work has been and is through proper instructions; a campaign of education is followed; and while our main object is to prevent cruelty to animals, justice and fairness should not be lost sight of. The anti-cruelty cause stands for Mercy, Justice and Righteousness. Its only creed declars that all life is entitled to humane and kindly treatment. It holds that the great advancement of mankind through the ages has been measured by the increase of humanity and the decrease of cruelty, for it maintains that knowledge alone does not make men better; but that kindness and humanity added are vastly more essential.

OWING to a temporary indisposition on account of intense heat, Prof. Olof Schwarzkopf will not be able to conclude his article on breeding problems this month, begun in the August REVIEW, but will do so in a following number. The doctor informs us that the heat at Fort Sam Houston is ranging between 100 and 105 degrees.

SANITARY DAIRY INSPECTION.

By L. M. Steckel, D.V.M. (O.S.U.), New York, N. Y.

In the discussion on dairy inspection at the International Veterinary Congress at The Hague, a resolution was presented to the effect that only veterinarians should serve as dairy and milk inspectors. Prof. Ostertag, Veterinary Director General of the



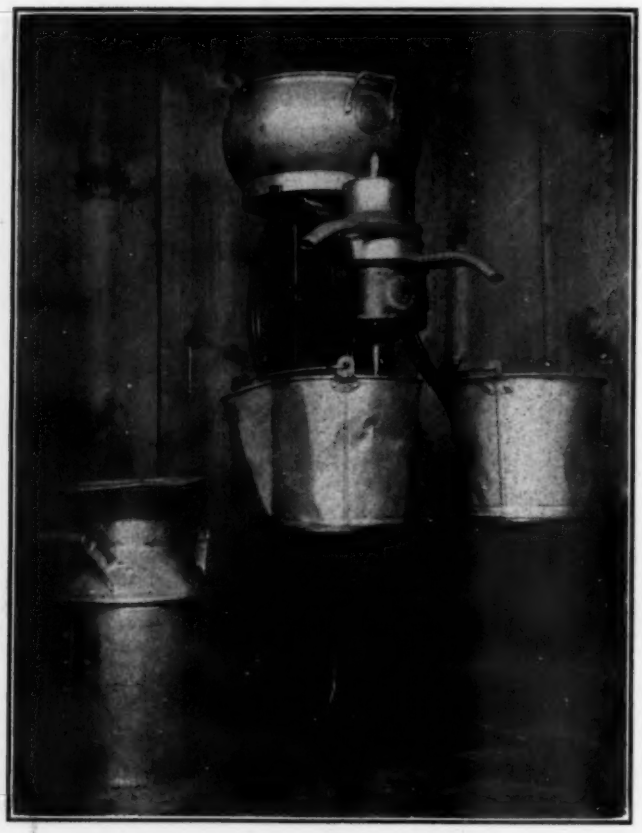
1.—A plain, serviceable milk-house.

Imperial Health Department, Berlin, took exception to the wording of the resolution and modified it to read that qualified men only should act as inspectors. In this case, said the professor, we will avoid the ire of our agricultural friends.

When real dairy inspection is to be carried out, when a thorough physical examination of the milch cattle is to be made, there is no question but that a veterinarian trained in the diagnosis of diseases in animals should be the proper person for this work. While any one with a knowledge of dairy cattle and dairy sanitation can assist in the inspection, it should be understood that

this man acts as the sanitary inspector under instruction and advice from the veterinary dairy inspector.

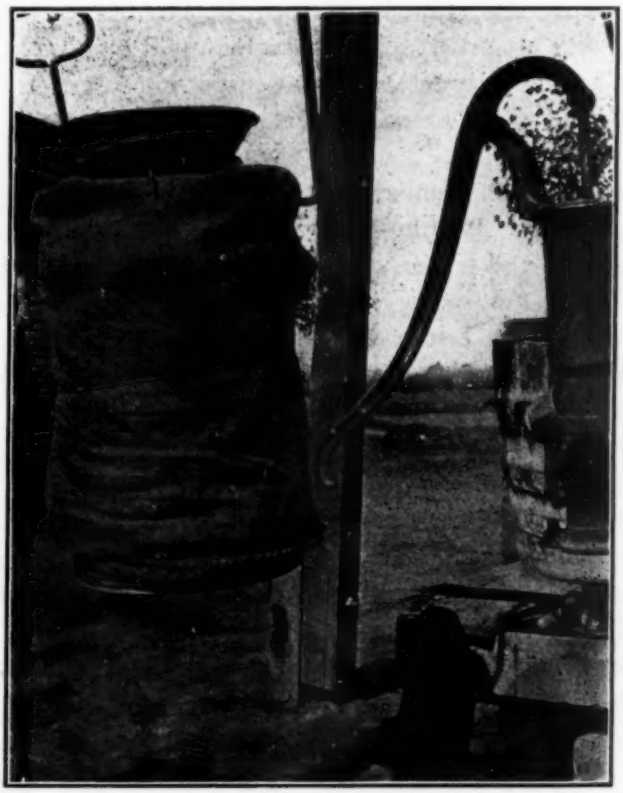
To inaugurate and carry out effectively a thorough system of dairy inspection in those states where, up to the present, it was known by a statute only, it is best to arrange the inspection work by counties and work in a radius around the creamery, con-



2.—Interior of same, with cream separator, pails and milk-cans.

densary or milk plant. During the first and probably the second round of inspection make clear to the dairymen (whom you will find have a very vague idea of what inspection means), the exact nature of the statute and the reason for such. In other words, take the men into your confidence. Try to enlighten instead of frighten. Be as much of an instructor as an inspector.

The work of the inspector will not be counted by the number of arrests made (court proceedings cost time and money), but by the actual results obtained in the improvement and building of barns and milk houses, the elimination of diseased cattle from the herd, the cleanly milking, the cooling of the milk and cream,



3.—A crude method of cooling milk and cream by a Southern California farmer. The can with the milk and cream is suspended on hooks, covered with a sack which is kept wet; as the sack dries, the process of evaporation keeps the contents of the can cool.

and the gradual scale of points gained from the first to the second inspection. Give the dairyman a stated time, say thirty days, or as conditions may warrant, to make the necessary improvements. Learn to discern between the one who wishes to comply with the law, as soon as he finds out what is to be done, and the one who tries to get around the law by excuses and delays.

As personal experiences I will cite the following:

On entering the premises of one dairyman, I told him my business and started to look things over. The man had a tuberculin-tested herd, a fair stable and a milk house. In the milk house he kept an old set of harness. When I told him that the milk will surely do no damage to the harness, but that it would be best to remove the latter, he grasped the situation and gladly acquiesced with my order. This same man told me that at a previous time he was very bitter against inspection in general, that he moved to this place to escape the pesterings from the milk inspectors.

I inspected the premises of a Mr. B., who was the proprietor of the creamery. He himself did not live on the farm. I found no milk house and left an order that they build one. The tenant then said that for twenty years they got along without it; and I replied that it was just twenty years too much and that it better not continue for twenty-one years. An interview with the owner followed and the next week the milk house was built.

A woman farmer known all around the county for obstinacy in not obeying the law, was told by me to clean up the premises and that the only alternative for her to be allowed to sell milk and cream would be to send for lumber that very afternoon and commence to build a milk house. The order was so peremptory that even this woman thought it best to execute.

Though it is often necessary for an inspector to resort to orders like the above, in the majority of cases diplomacy and tact are the main requisites for the successful carrying out of his campaign. Always make it a point that the creamery, condensary, or milk plant be clean and sanitary; also do not overlook the surroundings, as it is the outside appearance which impresses most the dairymen when they bring the milk or cream. Never be too hasty when making an inspection. Show the man where he will profit by the improvement and he will soon learn to take you as a wise counselor instead of a cursed admonisher. A good policy is that no matter how you were received, take your leave in a pleasant and cordial manner; at the same time leave the impression that your orders mean business.

MY EXPERIENCE WITH ANTI-HOG CHOLERA SERUM.*

By Dr. E. E. Black, Colfax, Iowa.

In the beginning I will say that I consider the serum to be of great benefit to growers of swine, but that its use among the farmers where no two herds are kept under the same circumstances of conditions will not give as successful results as the tests that are being conducted by private firms as well as by the government.

I began vaccinating about the first of July and am still using the serum, although not as much as earlier. I vaccinated three herds in one immediate neighborhood where the cholera was the strongest before any of the three showed infection. These three men have undergone the outbreak without one sick animal, while their closest neighbors have all had the disease in their hogs. This would go to show that without a question of doubt that the serum is absolutely prophylactic. Many other herds were vaccinated while still healthy and still remain so, but I cited the three above especially on account of their being in the thickest of the outbreak.

My results where the infection already existed have as a whole been very favorable. I will relate only a few typical cases.

In one drove of sixty shoats and twenty sows I was called after four or five had died, and perhaps eight or nine showed symptoms of cholera. All the live ones were vaccinated and since only about fourteen have died, including the nine sick ones, and perhaps the other five had the fever when vaccinated. I have not made a practice of taking temperatures before vaccination, although no doubt it is best if time is not too valuable.

Another drove was vaccinated immediately upon the discovery of one sick shoat, which died on the morning of vaccination, and not another case of cholera developed. There was no doubt but

* Presented to the Iowa Veterinary Association, Cedar Rapids, November, 1911.

that this one that died had genuine cholera, judging not alone of the pathological changes, but in part from the fact that the neighbor across the fence lost all of his young hogs with the disease. Another drove of sixty-five was vaccinated where about a dozen had died and the ravages of the disease were checked by the loss of only three more.

I could give many more examples like the above but do not care to take your time on specific cases, but will say as a whole that in no cases where I have vaccinated before the infection was present, has it ever made its appearance, and in every case where it was present I was enabled to check it reasonably soon after vaccination.

In all of my vaccination I used the single method. On account of using the single method I find that after vaccinating an infected herd, one will become sick occasionally, but will recover. This I attribute to the reaction which brings about the lifelong immunity caused by the hog taking into his body large doses of the infection secured by natural methods.

One question I would like to hear discussed is how long does immunity by the single method last, providing the infection does not become present. Some reports say that the protection runs out in three weeks, but my experience is that, so far, I have had it last for over four months in five different herds and in several more for two or three months.

About fifteen weeks ago I started a test by vaccinating two healthy shoats weighing about fifty pounds each and placing in a bunch of hogs where all that took sick died, some we sold and the remaining old sows died, so it certainly looks as though a very virulent form of the disease was present. To-day these two pigs are as healthy as can be, and have slept continually in the pen where all died. One of them showed the disease, which kept her off feed for about three days.

I am at present conducting another similar test, but it is so recent that results cannot be ascertained.

One more thing I wish to mention is that there is undoubtedly a strengthening by vaccination to the whole system in apparently

healthy hogs because practically all have told me that their hogs picked up and have done better since vaccination.

I would like to hear the subject discussed more thoroughly, but will say from my experience that I consider vaccination a great success and a treatment that will always be used.

NINE RESOLUTIONS were offered at the Utica meeting of the New York State Veterinary Medical Society and unanimously adopted. The last five were as follows:

Whereas, the subject of sanitary inspection is assuming such importance in the preservation of the health of the community and whereas the local communities are unprotected from unwholesome food products, thereby endangering human life; be it

Resolved, That this society again go on record in recommending state, as well as local meat and milk inspection by veterinarians.

Inasmuch as there is a decrease in the number and quality of the horses in the state of New York, due in a large measure to improper and unprofitable breeding, and,

Whereas the conditions may be improved by the introduction of stallions of suitable breeds and quality; be it

Resolved, That this society use every legitimate means in conjunction with the New York State Breeders' Association and the New York State Horse Breeders' Association to bring about a stallion regulation law.

Whereas, the office of Commissioner of Agriculture is subject to change of administration, your committee recommends the indorsement by the society at this session of the resolution adopted a year ago, establishing a Live Stock Sanitary Board and the office of State Veterinarian.

Resolved, That we here assembled recommend to the legislative committee that they again have introduced in the Legislature the proposed amendment to the Veterinary Medical law, as introduced at the last session.

Your committee desires to place the society on record as being in favor of amending the agricultural law relative to the eradication of tuberculosis in such a way that it will be possible to remove the obvious and suspicious cases from the dairy herds of the state.

THE TREATMENT OF PNEUMONIA OF THE LUNGS IN HORSES, WITH SEA-SALT SOLUTION.*

By A. T. Peters, Springfield, Ill.

In view of our observation that the blood of animals affected with pneumonia become reduced in the amount of alkalinity the moment the temperature rises, and continues as the progress of the lungs become involved, the author came to the conclusion that the alkalinity of the blood and the rise in temperature are in close connection with one another, also that the extent of the affected alveoli (an atonic condition of the bronchial blood vessels) are influenced under these conditions; consequently as these processes develop you get a weaker pulse. Therefore when the blood can be kept sufficiently alkali the diseased process in the lungs cannot progress with that pernicious energy as before. Now, when the blood of diseased animals is injected with an alkali solution the tone of the lungs will change and it will have the power to energetically resist the disease. For this purpose sea-salt seems to be the most adaptable medicament, which has been used in the human practice with very good results in special cases. To receive rapid therapeutic effect the author used a simple 1 per cent. solution in place of ordinary normal salt solution. The treatment was begun on twenty-five horses affected with pneumonia in the Artillery Corps of Russia. Of these twenty-five, eight were severe cases, three light, twelve with slight lung processes and two with complications of enteritis and complications of pleuro-pneumonia. On account of sea-salt containing a large amount of iodine it cannot be sterilized by heating on account of the rapid evaporation. Therefore I filter it through a cotton filter. In this way the author prepares a fresh 1 per cent. solution. The following apparatus is required: Rubber tubing and trocar, so that it can be easily inserted into the skin at the neck.

* Illinois State Veterinary Medical Association, Springfield, July 9, 1912. By Von W. Tschistjakoff, Veterinarian to the Artillery Corps of Russia. Translated into the German by G. Stange, *Berliner Tierarztliche Wochenschrift*, April 11, 1912.

In applying the solution an assistant is required that will hold the funnel at an elevation so that it can be inserted by gravity. All of this has to be naturally done under aseptic conditions. It is advisable to warm the solution slightly before injection, to receive a more rapid assimilation. I start my injections with 200 cubic centimeters and gradually increase them to 500, 800 and 1,000 cubic centimeters, according to the intensity of the pneumonia process, and then gradually decreasing the dose so as to avoid shock. The injections were made every other day. These injections, or more correctly infusions, are not accompanied with any pain or swelling or abscesses. In the horses in group No. 1 with extensive lesions on both sides of the lungs, pleuro-pneumonia, with rusty discharge from the nostrils, temperature 103 to 105, pulse 80. The infusions gave very good results, for the extensive processes in the lungs and in the pleura were immediately arrested in their progress and in a short time were returning to the normal. In many cases after the second injection the appetite of the animals began to appear and the animals also began to lay down again. The horses of the second group with both sides of the lungs affected without the pleura being affected, the results were even more marked and very much quicker. The dropping of the temperature in this group was very marked and the dull percussion sound of the lungs after one injection in the same day went over to the tempanitic sound, which sound returned to the normal. In the group that were slightly affected where the temperature was only 102½ to 106 and to 107 with bronchials affected and tympanitic percussion and sensitiveness of the intercostal muscles, one injection was all that was needed to pronounce the animals sound. It was very interesting to note that the injection of 1 per cent. of sea-salt solution in contagious pleuro-pneumonia seemed almost as a specific. In two cases where the patients had been treated with all known remedies without results and the animals were losing ground continually and complications of a profuse diarrhea set in, after two injections of 200 cubic centimeters each of sea-salt solution brought about recovery.

REPORTS OF CASES.

THE CLINIC OF THE NEW YORK STATE VETERINARY MEDICAL SOCIETY.

CASE 1. *Presented for Diagnosis:* Aged bay mare; could not back out of stall voluntarily, seemingly complete lack of muscular control; paralysis of left lip and ear; extremities cold. There would be spontaneous recovery from these symptoms in a few hours. Owner traded the horse off between the attacks at one time, but the symptoms returned, and so did the horse. Recovery from the attacks lasts from a few hours to a few days. He apparently sleeps them off—seem much excited when coming out of the spells. Dr. George H. Berns was asked to diagnose this case. The doctor attempted to induce the symptoms by applying pressure on the jugular veins, but without success, although the circulation was obstructed for three or four minutes. The peculiar spells would come on while the animal was at rest. Dr. Berns concluded that the condition was possibly due to ballooning of certain blood vessels, causing pressure on the brain, due to a partial rupture of one of the walls of a blood vessel.

CASE 2. *Cat.*—Presented the night before the clinic, apparently suffering pain, and with the history that three others had presented similar symptoms and had died. This cat also died during the night, and was presented to the clinic for post-mortem. Dr. Fitch performed the autopsy, and found that there had existed in the small intestines a hæmorrhagic enteritis, involving the mucosa and submucosa, the lesions of which were well marked.

CASE 3. *Gray Gelding.*—One of four reactors to mallein and agglutination tests for glanders. This horse had been in intimate contact with three others that had reacted and afterward showed physical symptoms of the disease and were destroyed. The horse in question reacted positively to the mallein test in January and again in May, and had also reacted positively to the agglutination test; temperature normal and no physical symptoms of glanders

We wish to acknowledge the assistance of Drs. Shaw (Brooklyn) and Mulvey (Moores) in gathering the data for report of clinic.

except a " heavey " cough. Was destroyed at clinic, and " posted " by Dr. Fitch, when the following lesions were found: Glanders nodules in mediastinal lymph gland, and also slight lesions of bronchial glands. The case was of extreme interest and value to the rural practitioners, many of whom stated that they had never met a case of glanders in their practice.

CASE 4. *Black Gelding,* ten years old, discharging tumor with fistula on right cheek. Patient secured on operating table and Dr. W. L. Williams (who pronounced the condition an odontome), with the assistance of Dr. Webber, proceeded to operate. The tumor was of the third molar, and had pressed on and rubbed against the second molar, and worn away and denuded the periosteum, so that the second molar also had to be removed. Dr. Williams explained that the principal danger to be avoided in this operation was injury to the facial nerve. Local anæthesia with cocaine was employed, and after diligent perseverence and skill had been persevered with for nearly two hours, the operation was brought to a successful termination. The bony tumor removed weighed one and one-quarter pounds.

CASE 5. *Chestnut Gelding,* six years old; " roarer." Left cartilage was paralyzed and the right one partially so. The Williams operation (using the Blattenberg burr) was performed on both sides by Drs. Frost and Eggleston. Horse in standing position in stocks, with head fixed in elevated position.

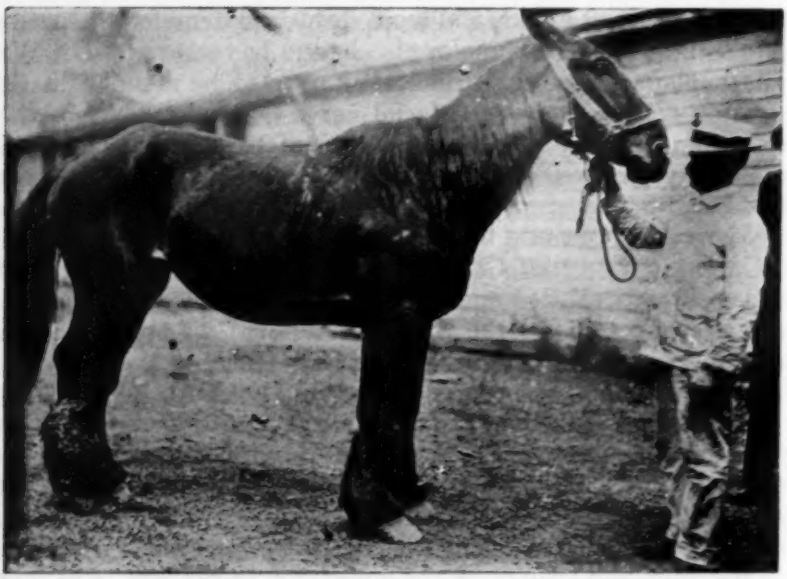
CASE 6. *Gray Mare* (aged), from practice of Dr. Huff, of Rome, presented for diagnosis. Drs. McKinney and MacKellar, diagnosticians. Has bog-spavin and ringbone on same member (off hind leg), very lame when worked. Dr. McKinney recommended firing and blistering the ringbone, and the " Hughes " operation for bog-spavin, on the upper part of the leg. The mare was placed on the operating table, and the operation (which consists of an incision through the skin, laying bare the saphena vein, dissecting that vein free for about an inch and a half, and ligating it), was performed by Dr. A. A. Brocket, under the direction of Dr. McKinney.

CASE 7. *Dark Gray Gelding* (mottled), four years old, presented by Dr. Currie for diagnosis. Dr. Cochran, diagnostician. Sprung knees, due to contraction of flexor tendons. Recommended shoeing with no toe-light heel. Prognosis—horse would be useful for some time.

CASE 8. *Bay Mare* (aged). Dr. Cochran, diagnostician, pronounced this case (which the accompanying cut illustrates) as traumatic lymphangitis. Prognosis: Will improve to useful con-

dition. Treatment recommended: "Planing" the surface with actual cautery and the application of tar-and-oakum and bandage.

CASE 9. *Brown Mare* (aged). Several veterinarians had examined this case and pronounced it obstruction of the air-passages by pedunculated tumor and other mechanical obstructions, recommending trephining, etc. Dr. W. L. Williams, on completing his examination of several cows, finally examined this mare and concluded that it was a "straight roarer." The doctor requested the owner to drive around the block at a good sharp pace, which he proceeded to do, but after some delay managed to



Courtesy of Saturday Utica Globe.
Case No. 8.

make his appearance at the fourth corner, his horse just able to move, and roaring so that he could be heard plainly the length of the block, a condition which lasted ten to fifteen minutes. The diagnosis was no longer a question.

CASE 10. *Black Stallion,* five years old. Castrated by Dr. McKinney—standing. Before the operation Dr. McKinney described his method of dealing with scirrhous cord, obviating the necessity of an operation, which is as follows: Split the cord back as far as it is indurated, and pack with bichloride of mercury powder (in some cases a combination of bichloride and powdered

arsenic), which will result in a slough of the cord without any further trouble. The doctor states it is not even necessary to remove the packing or dress the wound; it will drop out and the parts heal up.

CASE 11. *Bay Mare*—Poll-evil, presented by Dr. Currie. Operated upon by Drs. Eggleston and Frost.

CASE 12. *Chestnut Gelding*, nineteen years old. This case proved of special interest, having been operated on by Drs. Hollingworth and Baker at the clinic in Dr. Hollingworth's hospital at the last meeting of the state society in Utica, four years ago, for bone spavin; tarsal neurectomy being the operation performed. The great sciatic and anterior tibial nerves were divided at that time, and a grave prognosis given. The horse, (which is in the pink of condition despite his advanced years), was driven up and down the road and proved serviceably sound, with no bad results from the division of the nerve branches, after four years. His driver has no difficulty in making a fifty-mile round trip with him in a day and plenty of time to spare between the going and coming.

CASE 13. *Black Trotting Gelding*, lame in off fore. Dr. McKinney diagnosed the case as sesamoid lameness, and recommended firing and blistering and the use of an elastic bandage when working. Prognosis favorable.

In the following cases Dr. Williams was able to diagnose and describe conditions that he had referred to in his lecture on sterility the evening previous, and had illustrated with the lantern on the screen, from among his extraordinary collection of specimens.

CASE 14. *Holstein Cow*, had her last calf in July, 1910—although bred regularly since. Dr. Williams made out by examination per vagina, severe sinking of the broad ligament, external os œdematous; rectal examination further revealed the uterus somewhat enlarged; right ovary 2½ inches in diameter, wall very thick, possibly an abscess; right oviduct ⅜ of an inch in diameter, containing lymph or pus; left ovary 2½ to 3 inches in diameter, encysted; left oviduct ½ inch in diameter. Diagnosis, incurably sterile.

CASE 15. *Red Cow* (heifer, 3½ years old), bred regularly since eighteen months old; never impregnated. Examinations by Dr. Williams as in previous case, with following findings: Uterus enlarged; twice normal size, soft and flabby; characteristic of endometritis. Right ovary diminished; dimensions, ½ inch in length by ½ inch in breadth; consists of cyst; Graffian follicle

indicated recent oestrum, which owner corroborated. Ovaries much diminished; left ovary 7/8 of an inch in diameter, containing corpus luteum; neck was protruding (as shown amongst pictures on evening previous), ovaries free. Diagnosis: Probably sterile. Small possibility of breeding. Right ovary precluded; small possibility in left, but not much probability. Oviducts normal.

These cases diagnosed by Prof. Williams, and his wonderful collection of specimens; and the broad experience and careful

Courtesy of Saturday Utica Globe.
Some cases for diagnosis.

study of sterility and its causes, manifested in his lectures, which revealed the fact that they emanated from a master, are of untold value to the profession in general, in setting before them the *true* causes of this more or less common malady amongst our domestic animals, and will do much toward impressing upon the young practitioners the possibilities in this line of work; so that we will have done with the "opening her up" system, or dilatation of the os, when the true cause of non-conception, be it curable or otherwise, may be situated in the ovary, oviduct or uterus. We have pointed this out editorially some months ago, and we are glad to have an authority like Williams demonstrate it so clearly.

CASE 16. *Holstein Cow,* teat tumor; diagnosed by Dr. Frost, and tumor extracted with teat-tumor extractor.

CASE 17. *Bay Mare* (aged). Chronic endometritis. Diagnostician, Dr. Williams. No treatment prescribed.

CASE 18. *Black Gelding,* poll-evil. Animal placed on table and the Williams operation for poll-evil performed by Drs. Hall and Darby, under a general anæsthetic.

CASE 19. *Brown Gelding* (aged), degenerated mole on outside of hock joint. Had first appeared in Dr. Hollingworth's practice about a year and a half ago; had been operated on, but returned in six or eight months; condition at time of presentation to clinic about a year's standing, or more. Specimen of growth submitted to Dr. Ford, pathologist, who pronounced it a "degenerated mole." The horse was cast and after local anæsthesia by cocaine, Drs. Frost and Brocket proceeded to dissect out the growth. In addition to the large gathering of veterinarians at the clinic, there were also present Drs. Johns, Spence and Ford, pathologists; Dr. Bernstein, director and custodian of the state asylum, and Dr. Rogers (chemist), director of Pratt Institute, Brooklyn, N. Y.

So earnest and interested were those in attendance that they only gave themselves a brief recess at mid-day to partake of the excellent buffet luncheon Dr. Hollingworth served at his hospital, and returned to their work; and the general opinion prevailed that the clinic, as well as the meeting in general, was the best in the history of the society; in short, was a real "Hollingworth clinic," and those who were at Utica four years ago know what that implies.*

ACUTE GASTRIC INDIGESTION.†

By I. L. BUCHANAN, D.V.M., Auburn, N. Y.

Case No. 1. The animal was a four-year-old draft horse, weight 1,400; food, soaked corn, bran and oats.

I was called to see this case at 10 a. m. and found the animal in considerable pain, the pulse and breathing rapid, conjunctiva injected, marked tympany of whole abdomen, no peristalsis. I used the trocar in right flank and large quantities of gas escaped. Gave a hypodermic injection of arecoline and strychnine, and two ounces of aromatic spirits of ammonia, and an anti-ferment. Peristalsis was soon established, but more marked on the right side than on the left. Also there was considerable distension of the abdomen on the left side, and I knew the stomach was involved and filled with gas. Later, peristalsis became more marked on this side and the gas could plainly be heard moving along through the intestines. In an hour the animal was quiet. Stimulants were left to be given through the day

* In a communication under date of August 13, Dr. Hollingworth reports all cases operated upon at the clinic "doing well."

† Read before the Central New York Veterinary Medical Association, at Syracuse, June, 1912.

and the case was seen again at two o'clock. Apparently it was doing well and the owner reported it as coming along finely.

I told the owner I would telephone or see the horse again that evening. About seven o'clock I called again. The owner said the horse had been doing well all the afternoon. He led the horse out on the floor to water and I noticed it retched. The animal refused water and soon retched again. There was no tympany noticeable, no pain, and some peristalsis on both sides. We moved the horse about the floor and the more he was moved the more he retched, and soon commenced to paw. I drove to the office for a stomach tube and by the time I returned the retching was a continuous performance. The tube was passed through the nostril and a small amount of gas escaped. All symptoms of trouble disappeared. Salicylic acid in alcohol was given through the tube to stop fermentation and strong ammonia water well diluted was given for a stimulant. The tube was left in place, but no effort made to keep it open.

Soon the horse became uneasy, pawed, and commenced to retch. The tube was opened again and a small quantity of gas escaped, which was followed at intervals by spurts of gas as the tube was cleared or cleared itself. There was the constant formation of an odorless gas and if the tube was permitted to remain clogged for half an hour the pains and retching began again.

No physic had been given in the morning, which was a mistake. About nine o'clock at night three drachms of aloin were given. The ammonia was pushed and two ounces of turpentine given to stop fermentation. The case dragged along hour after hour under just these conditions,—a constant formation of gas and its escape through the tube, and a fair intestinal peristalsis.

About four o'clock in the morning two ounces of creolin in a quart of water was given, and one grain of arecolin hypodermically. An hour later the gas formation had ceased and the tube was withdrawn. The horse made an excellent recovery.

Now there are some questions about this case: What was the gas which formed so persistently? Reeks says the bulk of the stomach gases is carbonic acid and will unite with ammonia to form ammonia carbonate. He also says it is a mistake to give ammoniam carbonate in these cases, because in the presence of acid the carbonate is broken up and gives off carbonic acid, thus increasing the gas in the stomach. If ammoniam carbonate administered will do this, why will not the carbonate formed in the stomach also decompose in the presence of acid?

Undoubtedly, a purgative given in the beginning of the case would have sustained the action of the bowel and eliminated the all-night session with the stomach tube.

Case No. 2. This animal was used for farm work—when he was not laid up with colic. He was subject to colic. Every time he did a day's work, it was colic at night, but never any colic unless he worked. I was called in the forenoon, reaching the case late in the afternoon. The owner telephoned the horse was better and not to come, but I failed to receive the message, as I was already on the way. When I arrived, however, he wished me to look the horse over and give him something.

For two years this horse had been subject to these attacks after working, and had been turned out all summer to outgrow the trouble if possible. They put him at work the day before with the usual results. The horse had been in some pain all the forenoon and had eructated sour-smelling gas and some particles of feed. The sour smell and ingesta were in evidence about the horse's nostrils and in the feed box.

I examined the horse and found the pulse and breathing practically normal, no tympany and no pain, a very slight peristalsis.

This horse was under observation for an hour before any medicine was given, the owner being quite interested in discussing the case. The case was diagnosed as colic, due to embolism, and the owner was informed that the horse was liable to a ruptured stomach at any time under such conditions as were present. He laughed and said the animal had always recovered before and he was not alarmed this time. A purgative was given and an ounce of aromatic spirits of ammonia and a hypodermic of eserine sulphate. Just as I withdrew the needle the animal retched and immediately there was a change in its demeanor. I knew the stomach was ruptured and informed the owner the animal would die. He did not seem to believe me—because the animal had been sick so many times and had never died before. The post-mortem showed a ruptured stomach and an embolism in the posterior aorta anterior to the caelic axis.

LACTATION IN AGED VIRGIN MARE.

By Dr. W. J. RATIGAN, Camden, Ohio.

An old man came to my office one morning and stated "he had an old mare suffering from diabetes." I asked him how he knew, and he replied he had read the disease up in a stock book. I questioned the old man closely and became convinced he had a lot of faith in his book. I gave him some medicine, and several

days later was called to his farm, where I went in company with Dr. W. R. Dorsey, of Bellview, Ky. *Signalment:* Brown, general purpose mare, 15¾ hands high, twenty years old. *Anamnesis:* Was said to be " wormy " and lazy; for several months had been given a patent worm medicine, but condition didn't improve and she was turned to pasture. *Symptoms:* Much emaciated hind limbs and ventral part of abdomen, very oedemitous, udder greatly swollen and painful, causing a stradling gait. Temperature 104.6 (F). Pulse 94, respirations greatly accelerated. Mucous membrane slightly icteric, appetite somewhat capricious. Hard difficulty in milking her due to the smallness of the teats. Owner said she had *never* been to a stallion. This explains, perhaps, the rudimentary development of the teats.

Diagnosis—Mastitis, from retention of milk; the secretion perhaps caused by something injected at pasture which in its circulation had stimulated the lactiferous cells to functionate. There were no abrasions of any sort on the udder.

AN EXTRAORDINARY FREAK OF NATURE.

The accompanying cut was made from a photograph of a calf that was sent to one of our advertisers for preservation, coming from Ashland, Ky., where, we understand, the case came un-

der the care of Veterinarian Fanning, of that place. The history is, that the cow was dehorned while carrying the calf (at what month of pregnancy we have not yet learned), and that a negro held her head while the horns were being cut off; and it is suggested that the likeness to a negro child's head is the result of a maternal impression received by the cow at that time?

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

CARCINOMA OF THE SPLEEN IN A DOG—REMOVAL—RECOVERY [*F. W. Cousens, M.R.C.V.S., F.ZS.*].—A six-year-old small Irish terrier had an internal growth for which he was operated. On opening the abdominal cavity the growth was found entirely filling the cavity, implicating the spleen and necessitating the extirpation of the whole organ. When removed the entire mass weighed a little over 7 pounds. Although 30 or 40 blood vessels had to be ligated, but little blood was lost. There was but little raising of temperature for a few days after the operation. Careful diet was prescribed. Recovery after a month. The growth was found to be carcinoma.—(*Vet. Journ.*)

EXTENSIVE OSTITIS AND PERIOSTITIS OF THE HUMERUS AND SCAPULA IN A DOG [*Prof. George H. Wooldridge, F.R.C.V.S.*].—Large Great Dane bitch, three years old, was very lame on left fore leg and the shoulder was much enlarged. She has been lame since several months and treated with bandage and splints from the foot to the elbow. When the bandage was removed no trace of fracture could be detected. The shoulder, however, was enormously enlarged. The swelling being hard and extending down to some distance. The leg was paralyzed, the shoulder and elbow dropped and the carpus and metacarpus dragged along the ground. Suspicion of sarcoma was suggested. The dog was destroyed. The leg removed showed no abnormal adhesions of the skin or chest wall. The enlargement extended more than half way up the scapula and half way down the humerus. There were some deeply situated spicules of bone, but the growth did not have the appearance of sarcoma. It was simply made of œdematous inflammatory fibrous tissue. The humerus was found the seat of rarefying ostitis and periostitis. There was a large cavity in the upper portion of the bone and the periostitis involved the body and upper extremity of the bone down to its lower extremity. Periostitis existed also on both external and internal face of the bone. Articular surfaces were sound.—(*Vet. Journ.*)

THE BEST POSITION FOR INCISION OF THE ABDOMEN IN OOPHORECTOMY OF THE CAT [*Prof. F. Hobday, F.R.C.V.S.*].—The author changing his opinion as advanced in his work on canine and feline surgery, after performing the operation on some 100 female cats, recommends that the higher flank incision be resorted to, as far the best of any other for the opening of the abdomen. This is based on two reasons: "first, because the cat, being an animal who (after an operation) has the habit of sitting quietly in a huddled-up position, there is less likelihood of adhesion between the fresh wound and either omentum or intestine; and secondly, because in the event of the patient suddenly becoming frightened and jumping a height to the floor, there is less likelihood of protrusion of the intestine."—(*Ibid.*)

BONY TUMOR OF THE MAXILLA [*J. P. Heyes, F.R.C.V.S.*].—Two-year-old filly has on the outer side of the left lower maxillary bone, opposite the third lower molar, a painful, hard swelling. Simple remedies were first applied and the growth enlarged, interfering with mastication. When the temporary molar was shed, the tumor was readily apparent in the mouth, and it had grown, extended to the margin of the masseter muscle and the lower border of the maxillary ramus. Firing and biniodide blister were resorted to. Acvinomycosis being suggested by the presence of small pustules bursting and discharging yellow pus, microscopical examination was made and proved negative, staphylococci being only detected. Finally surgical interference was decided, the animal secured and chloroformed. A large piece of the growth was removed and it was then found that within this bony tumor there was a sharply defind nucleus of more compact material, probably a perverted developed third permanent molar, which rested in a cavity communicatng with the mouth through the alveoli of the temporary molar. Three days after this operation a diffuse swelling appeared on the scapular region of the near fore leg with great febrile manifestations; and the next day a similar swelling made its appearance in the left lumbar region. Pus soon made its appearance and microscopically examined showed staphylococci. An autogenous vaccine was prepared and injected hypodermically twice in 24 hours. Soon after the symptoms improved and one week after the injection the mare was entering in convalescence, although it was only after seven weeks that the cavity of the jaw was closed.—(*Vet Record.*)

GENERALIZED MILIARY TUBERCULOSIS [*Henry B. Eve, M.R.C.V.S.*].—At the post-mortem of this valuable maiden bull bitch, aged two years and six months, which was destroyed after a comparatively short sickness, the liver, lungs, kidneys, lymphatic glands were found all extensively diseased. The spleen was only slightly affected at its apex. Bought for breeding purposes, this bitch was kept in the house and caught cold, which was treated as a case of influenza. After a stay in the country for a while, she showed dry husky cough, followed later by excessive expectoration. Rapid emaciation took place, intermittent diarrhœa tinged with blood. Elevated temperature, specially at night. Purulent discharge of the eyes. Rales were heard on auscultation of the chest. Pulse accellerated. Breathing hurried, with occasional hemoptysy. Tuberculin test gave typical reaction. A treatment with medicinal doses of tuberculin and open air, adrenaline, quinine, tonics, etc., with raw meat and fish, milk, eggs, etc.—gave but a temporary relief, and the animal one day was taken with such a violent fit of coughing, followed by hemorrhage and delirium, that the animal was chloroformed to death.—(*Vet. Record.*)

USEFUL DISINFECTING SPRAY [*Oscar Stinson, M.R.C.V.S.*]—A simple mode of throwing spray, so as to irrigate the interior of the facial sinuses after trephining, is by using a sprayer analogous to that used for horticultural purposes, viz.: a large tin can which is carried on the back of a man and held by straps passing on the shoulders. The tube which the can carried at its bottom has a rubber prolongation which is introduced in the trephined openings and the force and current of the liquid injected is regulated much more easily than the common hose-pipe which is frequently used. The application of this instrument, in addition to being extremely simple, is effective and expeditious, and is possessed of advantages not always obtainable when the apparatus is either complicated or cumbersome.—(*Vet. News.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

RETAINED PLACENTA CAUSES INFECTIOUS METRITIS—INTRAVENOUS INJECTIONS OF COLLARGOL—RECOVERY [*A. Chalopin*].—A cow had calved six or eight days previous, but had only delivered part of her placenta and she refused her food. The

symptoms present nothing alarming at first and the case is considered and treated as one of simple metritis. The treatment of permanganate injections and of salol and naphtol internally did not seem to be followed by good results and three days later the animal is in serious condition. One of the knees has become swollen and the infection is soon manfested by general symptoms. All the legs are affected, the large articulations are all disabled, pneumonia sets in. In fact, death at short notice is considered as unavoidable. It is in the presence of this condition that the writer resorted to the intra-venous injections of collargol. A first solution, made of 50 centigrams of collargol in 10 cubic centimeters of boiled water was injected and followed by superior results. The animal showing great improvement a few hours after. For three days in succession 20 centigrams of collargol were injected and in five days there remained only the pneumonia which was relieved readily a few days after.—(*La Semaine Veter.*)

Facial Spasm in the Horse [*Professor Douville*].—Brown gelding, six years old, presented curious troubles of the physiognomy. The lips, eyelids and ears are periodically the seat of convulsive movements. First the lips have slight tremblings which gradually increase in number and severity. The eyelids also. They began on the ciliary angles and soon involve the orbicularis. After a few seconds the lids open and close so frequently, rapidly and repeatedly that the globe is almost closed. There is true clonic blepharospasm which lasts for a few minutes, when gradually all passes off. The contractions of the ear are less marked and principally noticed when the access is fully developed. Pressure over the various regions affected have no effect. The accesses are intermittent and last about five minutes. If the animal is kept quiet in a dark stall he shows nothing, but if the door is suddenly opened or if light is thrown on the box or if the horse gets frightened the symptoms appear. The troubles occur only in the regions where the branches of the facial nerve are distributed. No treatment was prescribed as it was an animal recently bought and his condition obliged the dealer to take it back.—(*Bullet. de la Soc. Cent.*)

Curious Intrathoracic Traumatism in a Cow—[*Mr. Bonnigal*].—Cow refuses eating since two days—no rumination takes place—the animal moans, is stiff and dull. Temperature 39.6-10. Percussion on the left side of the chest is painful. Respiration accelerated. A hard reducible swelling appears after

two days between two ribs. Detected as the cardiac region is auscultated, it is found harder in the center and about the size of the fist. An incision quite deep is made and in the intercostal muscular tissue is felt the extremity of a metallic wire. Taken hold of, about 15 centimeters of it are pulled out when resistance requires the use of a blacksmith's nippers to secure it, and finally a parasol rib, 52 centimeters long is pulled out, holding at one end a ball of alimentary substance from the rumen as big as a large nut. The animal died the next day. The postmortem revealed ordinary traumatis lesions of similar cases.—(*Prof. Veter.*)

HEMATOMA AND PARALYSIS OF THE PENIS IN A HORSE—AMPUTATION—RECOVERY [*Mr. Cubret, Army Veterin.*]—*Bourdigal,* ten years old, officer's horse, is reformed for eye trouble and is now broken to harness. One day he gives a violent kick with both hind legs and then shows suddenly a gradual enlargement of the penis. Indeed soon this organ is enormous, hangs from the sheath about 40 centimeters and measures the same size in circumference. Its free extremity is turned backwards. Urination takes place normally in a stream turned backwards between the hind legs. Hematoma of the penis is diagnosed. Scarifications with the zoo-cautery gives escape to abundant sero-bloody liquid. The swelling gradually diminishes, but the paralysis of the penis remains. Gangrene is threatening. Amputation was performed by dissection of the urethra, its suture to the skin and section of the cavernous body. No special after treatment. Recovery uneventful.—(*Rev. Veterinain.*)

EXTRAORDINARY RECOVERY [*Mr. Dutems*].—Low-bred old mare had had already six gestations, this last looks rather serious. Her foal is in transversal position, costal presentation, with the hind legs pushed back and head and fore legs beyond reach. Only one elbow can be felt. The abdomen of the mare is dropping, the efforts are going since four hours and the animal is much exhausted. Both fore legs are with difficulty finally amputated and the head and neck severed near the trunk, when finally the remains of the foal were extracted. After removal of the membranes free washing of the uterus was prescribed with 25 quarts of boiled water slightly antiseptic with permanganate. The next day palpation of the abdomen indicates that most of the irrigation has dropped in the abdomen through a transversal laceration of the uterus. The animal is considered as doomed. The owner

will not allow her to be destroyed. Twenty-four hours later the mare drinks and eats well. Her general condition is good and finally recovery follows.—(*Journ. of Zootechny.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

PRIMITIVE PULMONARY SARCOMA IN A CAT [*G. Roncaglio*].—Age seven years old, the animal began to lose flesh and became dull. Soon his breathing became oppressed, then dyspneic with the slightest exertion. General condition is bad. Abdomen tense, mucous membranes anemic and conjunctiva has a subicteric coloration. Thorax is arched, intercostal motions limited, palpation not painful. The respiratory movement is almost entirely gone, except in some points where it is stronger and harsh. A very marked dullness is detected with plessimetry. Cardiac area is defined with difficulty. Peripheric lymphatic glands are normal. A positive diagnosis could not be made as the owner objected to further applications of means of obtaining it, such as tuberculination, serodiagnostic, etc. The animal was killed. At the postmortem the pleura and heart were found perfectly normal. The lung is much enlarged, hard, almost fibrous but yet elastic. It presents white-yellowish zones resembling the white substance of the brain. Under the visceral pleura there remains a few small spots of normal pulmonary tissue. The bronchial and mediastinal glands are also involved in the same lesions. The histological examination revealed its nature.—*La Clinica Veter.*)

SURGERY OF THE LUNGS [*A. Gaule*].—A young dog had a penetrating wound of the chest with prolapsus of the lung. The wound was made with a butcher knife, and is situated on the left side, about the middle third of the chest. It runs horizontally and extends through the ninth and tenth ribs and the eighth, ninth and tenth intercostal spaces. The piece of lung which protrudes is as big as a small apple. It is bloodless and carries a quite deep longitudinal wound. The respiration of the dog is hard, slow and superficial. The femoral pulse is normal. After cleaning and disinfecting, a solid silk ligature is applied on the base of the prolapsed mass, as deep as possible, so as to isolate it from the sound lung. An incision is made above the ligature and the stump pushed back in the chest. The cutaneous wound and the suture of the muscles being done, a dressing was laid

over. Cafeine injections were given for a few days. Milk diet. Slight fever on the third day is allayed with calomel. The second day only the breathing was a little disturbed. Dressing changed on the eighth day. Recovery in two weeks.—(*Il Mod. Zooiatzo and R. Generale.*)

TINCTURE OF IODINE IN CONTAGIOUS VAGINITIS [*Dr. Pagliardini*].—Desirous to experiment various modes of treatment, the writer having a number of cows with the disease breaking out among them, divides them in four lots. Each lot is treated with vaginal bougies made of iodol (10 p. 100) and protargol (2 p. 100), which are introduced every two or three days after a cleaning made with different antiseptic solutions. The irrigations are made with 10 per cent. of salted sterilized water in one lot of cows; in another with lusoform solution at 2 or 3 per cent., and in a third with a weak solution of sulphate of copper. For the fourth lot, the irrigations are rep'aced by tincture of iodine applied with a brush with flexible metallic handle, so as to reach the bottom of the vagina.

This last mode of treatment, compared with the others, has given excellent results. The author does not use bougies now, but every four or five days applies tincture of iodine. One hundred and fifty cows treated in this way recovered much quicker than all the others treated differently. Of easy application, the new treatment recommends itself by its low cost.—(*Il. Mod. Zooiat. cnd R. G.*)

ACKNOWLEDGMENT.—Circular 199—B. A. C.—The Score-Card System of Dairy Inspection, by George M. Whitaker; Circular 200, B. A. I., A Simple Butter Color Standard, by S. Henry Ayers; Bulletin of State Agricultural College, Colo. Div. of Vet. Med.; North American Journal of Homœopathy (August); Report Ontario Veterinary College (1911); Report New York State Veterinary College (1910-11); Philippine Agricultural Review (May and June, 1912); Agricultural Journal of So. Africa (June, 1912); Catalogue 1912-13, Indiana Veterinary College; Farmers' Bulletin 498, U. S. Dept. of Agr.; Methods of Exterminating the Texas Fever Tick, by H. W. Graybill, D.V.M.; Quarterly Record, No. Dak. Agr. Coll., Catalogue of Course of Veterinary Medicine and Surgery; Bulletin 199, Treatment of Bovine Tuberculosis, N. S. Mayo, Va. Polytechnic Institute; The "Braxy" Type of Sheep Disease in Australia, by J. A. Gilruth, Melbourne University.

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TEXT BOOK OF VETERINARY MEDICINE.

TEXT BOOK OF VETERINARY MEDICINE, by James Law, F.R.C.V.S., Director of the New York State Veterinary College—Emeritus. Third edition enlarged and revised to date. Fourth volume just from the press; the three earlier volumes revised and published since 1910. Volume five under revision at present time. Four completed revised volumes number more than 2,500 pages. Ithaca, N. Y. The Author.

This stupendous work of Prof. Law's is a masterpiece in veterinary literature. The rapid advances in veterinary medicine in the last few years has made the task of revising a work of this kind more exacting than ever before, but Professor Law, with the tenacity of purpose, determination and faithful devotion to the cause of veterinary medicine that have characterized his life-work, has been equal to the occasion. In almost every chapter the modern doctrines and therapy have been availed of for the benefit of the student of veterinary medicine. In volume I. (the whole of which has been revised), the text on diseases of the blood, serums, toxicity, globulacidal, agglutinating and precipitating actions are new, with the different tests suggested, bringing the work right up to the light of present-day knowledge.

In Volume II., besides improvements in the general text, the subjects of metabolism, auto-intoxication, internal secretions, etc., open up what is essentially a new field. Dealing as it does with diseases of the digestive organs, liver, pancreas and spleen, Volume II. is particularly interesting to the general practitioner.

Volume III., which deals with diseases of the nervous system, genito-urinary organs, eye, skin and constitutional diseases, has not required so general a revision as the two previous ones, but has nevertheless been brought strictly up-to-date in the diagnosis and treatment of diseases of this important group of organs.

Volume IV., which treats of infectious diseases, sanitary science and police, microbes, microbian pathogenic products, defensive systemic products, immunization methods, serum therapy, specific infections, prevention and management, has been virtually made over, to adapt it to the newer knowledge and doctrines. The whole great subject of microbes and their products, in their relation to disease, therapeutics, immunization, etc., has been presented in a general system by which the earnest student can bring

up his knowledge to date, and deal with sanitary problems in a manner which was not available for the practitioner five or ten years ago. Space does not permit of a review of this most excellent literary production, that can in any way nearly approach what it merits, any more than the reviewer can possibly do justice to the work of so great a veterinarian, teacher and writer, as is its author; but we believe that our judgment will not be questioned when we say that *Law's Text Book of Veterinary Medicine* is one of the most complete and comprehensive works on modern veterinary medicine that has ever been published in this or any other country. Aside from the author's immense fund of information, he is a born teacher; and the same pleasant, yet forceful and convincing manner with which he imparts his knowledge in the class-room, is felt throughout the several chapters of his text-book. Printed on good paper, in clean, clear type, each volume is bound in red with gold lettering; the five volumes make a handsome and impressive set of books that should grace the library of every veterinarian, and will prove of inestimable value to physicians interested in comparative medicine.

SURGICAL AND OBSTETRICAL OPERATIONS.

SURGICAL AND OBSTETRICAL OPERATIONS, by W. L. Williams, Professor of Surgery and Obstetrics in the New York State Veterinary College, Cornell University. Embodying portions of the Operationscursus of Dr. Pfeiffer, Professor of Veterinary Science in the University of Giessen. Third edition, revised and enlarged; 240 pages, with 73 illustrations: 1912. Ithaca, N. Y., Carpenter and Company.

This work, which has resulted as a gradual evolution from the booklet published by Professors W. Pfeiffer and W. L. Williams in 1900, entitled "A Course in Surgical Operations," has attained a degree of perfection that it would be difficult to excel in a work of that kind. The cuts illustrating parts to be operated upon, the operative procedures, and the instruments employed, are clear and concise; printed upon excellent paper, each cut usually occupying a page, where it is set in the center, with a clear white background—the description of the plate being set in the same manner on a page opposite to the illustration; making the study of the illustrations easy and pleasant, and their meaning easy of comprehension; essentials in a work on surgery. The text is expressed in that clear, comprehensive manner devoid of all superfluous terms, which characterizes all of Professor Williams' works, or lectures, so well known to the veterinary profession. Part I. contains four divisions grouped as follows: I., operations

on the head, of which twelve are described; II., operations on the neck, of which ten are described; III., operations on the trunk and on the genital organs, of which fourteen are described; IV., operations on the extremities, of which fourteen are described; an aggregate of fifty operations, the technic of which is carefully described and illustrated. Part 2 embraces embryotomy operations, of which nine are described and illustrated. The previous editions of Williams' works on surgery and obstetrics have been good, but this third edition of *Surgical and Obstetrical Operations* brings veterinary surgery right up to the hour with the most thorough, scientific and practical methods of procedure, including the latest instruments especially devised to meet the requirements of the operator. So that while this concise and comprehensive little work is eminently fitted to the uses of the veterinary student, it is equally essential to the practitioner who would keep abreast of the times in veterinary surgery.

WELL-KNOWN NEW YORK VETERINARIAN DIES.—We were grieved to read in a recent issue of the *Rider and Driver* of the death of an esteemed friend, one of the oldest veterinary practitioners in New York City, Dr. James Shaw Cattanach, who had passed to his last resting place on July 7, at his home at Lake Ronkonkoma, Long Island, after an illness lasting eight days. Born in Scotland, Dr. Cattanach came to America forty-odd years ago and has practiced his profession in New York City since that time. He was veterinarian to the first horse show held at Madison Square Garden in 1885. Dr. Cattanach was a good horseman, and was fond of driving a "good pair." Nearly every fall when his friends would meet him after not having seen him for a month or two, and would remark upon his ruddy complexion and hale condition, he would reply that he had "been away on the heather," for he went abroad nearly every year. Three sons have followed their father's choice in selecting an avocation, Charles C., John J. and James S., Jr., all of whom are successful veterinarians.

MUST READ REVIEW TO KEEP IN THE FRONT RANKS.—Dr. W. C. Holden, Delphos, Ohio, in renewing his subscription, writes: "No veterinary practitioner can keep pace with the revolutions of the great wheel of veterinary progress and not be a reader of the AMERICAN VETERINARY REVIEW."

CORRESPONDENCE.

PERTH, WEST AUSTRALIA, June 29, 1912.

Editors AMERICAN VETERINARY REVIEW, NEW YORK: In a recent number of the AMERICAN VETERINARY REVIEW I noticed that one writer referred to the continued infection of a herd, and remarked that there appeared to be a "Typhoid Mary" amongst the herd which he was unable to locate by means of the tuberculin test. The history of a little "Typhoid Mary" of mine may prove of interest. She was an old brown Jersey cow belonging to a milkman in the Metropolitan area, whose herd I tested with P. D. & Co.'s tuberculin in February, 1911. Following inoculation the temperatures were taken on the 12th, 15th and 18th hours, when 50 per cent. of the herd reacted, but the old brown cow was not amongst them. At this time she showed no clinical evidence of disease, and was in fair order for a milking cow. In November, 1911, I again inspected the herd, and examined all the udders manually. Old "Brownie" showed a small fibrous thickening extending up from a supernumary teat at the back of the udder, and she was again tested, together with an old cow that had previously reacted, and another unthrifty brute. The latter gave a marked reaction and was subsequently slaughtered, but neither of the two former showed any appreciable rise in their temperatures, which were taken at the same periods as before. The following April I went through the herd. Once more I found old "Brownie" with a typical induration of one hind quarter of the udder, accompanied by enlargement of the supra-mammary lymphatics. She was immediately condemned and on slaughter proved to be extensively infected with tuberculosis, practically all the glands, even down to the popliteal, being diseased, while the pleura was covered with "grapes," and one horn of the uterus, with its accompanying ovary, was also involved. Although the disease was widely distributed throughout her body, I have seen cattle in a worse state give a pronounced reaction to tuberculin. As an illustration I append the temperature record of the worst case I ever post-mortemed: Pre-inoculation, 101; 12th, 105.4; 15th, 104.4; 18th, 103—hour temperatures. At the time I laid violent hands on her, old "Brownie" was looking

well, with bright eye, clean coat and unabated appetite. A section of her udder was mounted at the Board of Health laboratory and proved to be undoubtedly tubercular. I dedicate her memory to those pig-headed members of the medical profession who persistently oppose the pasteurization of milk for children. In contrast to old "Brownie" may be mentioned two valuable shorthorn heifers that reacted to the tuberculin test. Their cases are mentioned to show the impossibility of arriving at, during life, any correct idea as to what cows it is safe to leave in a herd and which are likely to be dangerous. No. 1 was a red heifer in good condition. The post mortem showed three bronchial glands affected, a tiny spot in one mesenteric, and a small patch in the left lung. The small patch, however, proved to be discharging a liberal supply of tubercular pus into one of the bronchial tubes, with the result that this heifer was actively spreading the disease. No. 2 was a lovely white heifer, which it seemed a sin to kill. She proved to be absolutely clean, so far as macroscopic lesions were concerned, until I reached her supra-mammary glands, which showed a few small caseous areas. Sections prepared by the government pathologist showed typical giant cells and were pronounced tubercular. Here we have two apparently healthy heifers in the pink of condition—one actively spreading the disease, and another apparently about to start a primary lesion in the udder.

E. A. Weston, B.V.Sc.

Addresses for Personal Communications.—Owing to the fact that a large number of Review readers throughout the country have addressed communications to Drs. Mangan and Duncan, since the publication of their papers on "Autotherapy" in the July and August numbers of the Review, respectively, to obviate further matter coming to this office we give below the addresses of Dr. Charles H. Duncan (physician), No. 233 Lexington avenue, and Dr. D. J. Mangan (veterinarian), No. 2557 Third avenue, New York, N. Y.

The American Association of State and Provincial Veterinarians has an able and forceful leader in its president, Dr. James I. Gibson, Des Moines, Iowa. Uniform live stock health certificates (the creation of which is one of its objects), has been a subject, the importance of which has forcefully impressed Dr. Gibson for some time, and we foretell the accomplishment of that and all the other important objects of the organization, in observing the personnel of the officers.

OBITUARY.

FOSTER ANDREW WAGNER, V.M.D.

Dr. Foster Andrew Wagner died at his home in West Philadelphia, August 6, 1912, in the thirty-first year of his age, following a long illness, the doctor having contracted leucemia while filling the position of government veterinary inspector. Dr. Wagner was born in Hazelton, Pa., February 4, 1882, and received his early education in the public schools of that place. He was graduated from the University of Pennsylvania in 1907, after a three years' course of studies in the school of veterinary medicine, receiving the degree of Doctor of Veterinary Medicine. After graduation he began practice at Windber, Pa., but in 1909 accepted a position as meat inspector for the United States Government, and was stationed at Cleveland, Ohio, where ill health first overtook him. Later he was transferred to Philadelphia, where he remained until the time of his death. He is survived by a wife and three-year-old son. The many kind traits in his character, and his ability in his calling, had made for him many friends, who sincerely mourn his loss.

ROBERTSON MUIR, M.R.C.V.S.

With profoundest sorrow and regret we announce the death on August 6, 1912, of our co-worker and friend, Dr. Robertson Muir, who was one of the faculty of the Grand Rapids Veterinary College.

Dr. Muir was born July 26, 1852, at Glasgow, Scotland. He received his veterinary medical education at Royal Dick College, Edinburgh, Scotland, and received the degree of M.R.C.V.S., April 17, 1875. He practiced in Scotland and Ireland for ten years and in 1885 came to the United States, locating in Union City and later removing to Jackson, Michigan. Later he went to Bowling Green, Ky., where he was made State Veterinarian. He then moved to Grand Rapids, Michigan, where he practiced for seventeen years. He was a member of the Michigan State Veterinary Medical Association and the American Veterinary Medical Association.

He was well liked by all who knew him—honest and kind hearted.

GRAND RAPIDS VETERINARY COLLEGE.

SOCIETY MEETINGS.

ALABAMA VETERINARY MEDICAL ASSOCIATION.

The fifth annual meeting of the above association met in the College of Veterinary Medicine of the Alabama Polytechnic Institute at Auburn, Ala., on the morning of August 2, 1912. A full attendance was present. After routine business the following program was carried out: Dr. O. W. Payne, of Birmingham, read a paper on " Some of His Findings at the Birmingham Slaughter House." He had several specimens of parasites and pathological specimens which he discussed and exhibited to the association. Following this paper a number of members took part in discussing it.

Autogenous Bacterins for the treatment of fistulous withers was next discussed by Dr. I. S. McAdory, of Auburn. He reported the use of these bacterins in several cases. The paper was fully discussed by Drs. Jago, Nixon, Browning, Jackson and Cary.

" Pericarditis As a Complication of Influenza " was the next paper by Dr. G. W. Browning, of Montgomery. He stated that he lost fully 99 per cent. of the cases and that there was no sure cure of this complication, in fact he reported most of them as fatal.

Dr. O. R. Eatman, of Gadsden, Ala., reported five cases of the eversion of the vagina. He stated that most of these cases were due to the formation of old cicatrices coming from injuries of previous time of delivery. His method of treatment was that of using the bistoury at several places around the os uteri. In other words, he did not cut the os all at one place but at several places and then dilated it with his fingers and hands and made a delivery.

Dr. M. F. Jackson reported the results of his treatment of fractures of long bones and exhibited a special splint that he devised especially to apply to fractures below and above the hock joint and about the fetlock. In his treatment of cases for the Tennessee Coal & Iron Company he reported good success.

The following resolution was unanimously adopted by the Alabama veterinarians: Resolved, That it is for the best interest of the public and for the association that all municipal meat and

milk inspection in Alabama shall be done by graduate veterinarians.

The following officers were elected for the ensuing year: Dr. W. D. Staples, Anniston, Ala., president; Dr. O. R. Eatman, Gadsden, Ala., vice-president; Dr. C. A. Cary, Auburn, Ala., secretary-treasurer.

The Georgia veterinarians were called to order by Dr. Jago, of Athens, Ga., and Dr. Burson, of Athens, was elected secretary pro tem. Dr. Jago, the president, gave his regular address, in which he advised all the veterinarians to be true to the association and active members.

Dr. Burson then read a paper on "Sporadic or Mycotic Stomatitis in Cattle." He told how to differentiate it from contagious foot and mouth disease. This paper was fully discussed by both the Georgia and Alabama veterinarians.

Dr. P. W. Hudson, of Americus, Ga., reported his method of treating cases of bursatti. He removed all infected tissues with a knife and then applied chloroform linament regularly. In the discussion some veterinarian advised the use of iodoform one part and ether six parts with daily application.

Dr. Burson next gave a talk on the method employed in making hog cholera serum at the state plant at Athens, Ga. Many questions were asked about the technique of this process.

Dr. Jago next gave a talk on the treatment of ordinary colics. As usual this subject brought out an extreme and lively discussion on the part of all veterinarians present.

The Georgia veterinarians took in five new members and the Alabama association admitted seven new members. Following this the association adjourned and a polyclinic was held at the operating pavilion of the College of Veterinary Medicine. There were twenty-five cases present at the clinic.

Dr. C. R. Jolly trephined a case where pus was found in the turbinated bones. Dr. J. A. Prickett diagnosed and operated on a case of puncture of the foot at the toe where the pus had penetrated to the coronet. Dr. R. B. Nixon gave a demonstration of castration.

Dr. T. L. Wright, Moultrie, Ga., one castration.

Dr. B. S. Clay, Fitzgerald, Ga., one castration.

Dr. W. D. Staples, of Anniston, Ala., made a diagnosis and gave treatment for a case of sesamoiditis. Dr. Jago, of Athens, Ga., made a diagnosis of a case of lameness in the foot. The location of the lameness was questioned, and the animal was cocained, proving that Dr. Jago was correct.

One fibroid tumor on the elbow of a mule was removed by Dr. C. A. Cary after the animal was placed on Conkeys Simplicity operating table. A melanotic tumor was removed from the croup of a gray horse, the horse remaining in a standing position confined by hobble and twitch by Dr. Cary. Another case of fibroid tumor was removed from the abdomen of a mule by Dr. Cary.

In nearly all cases a diagnosis was made by at least three veterinarians and their opinions given before any operation or decision was made upon the line of treatment.

Several other cases of lameness, some obscure and difficult to diagnose, were present at the clinic. In fact, the clinic started at 10 o'clock in the morning and was continued until about five in the evening. It was considered by all one of the most interesting things in connection with the Georgia-Alabama veterinary meeting.

Just as the clinic was closing a case of flatulent colic in a mule came in. This case was successfully treated by Dr. R. B. Nixon. He first gave her orum a dose of chloral, then tapped the colon; then gave arecoline.

C. A. CARY, Secretary-Treasurer.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

The nineteenth annual meeting of this association was held at the Board of Trade Rooms, Reading, Pa., June 19, 1912. The meeting was called to order by Dr. Geo. R. Fetherolf, the president being absent.

The minutes of the previous sessions were read and approved. The attendance was good, most of the members longing for a day away from home and constant work.

After the regular routine business, the following propositions for membership were received, namely: Drs. H. De Turk, Birdsboro, and J. O. Feustermacher, New Tripoli. These men were later duly elected as members of the association.

The various members of the Committee on Meat and Milk Inspection reported briefly. The subject of "Inspection Work" was thoroughly discussed.

Election of officers:

President—G. R. Fetherolf.

Vice-President—M. D. De Turk.

Treasurer—U. S. G. Bieber.

Secretary—W. G. Huyett.

Only one secretary being made, Dr. Huyett, the incumbent, generally performing the work of both offices in the past, now acting as corresponding and recording secretary.

Trustees—O. G. Noack, D. R. Kohler, J. O. Feustermacher.

There being no opposition to any of the nominees the secretary was instructed to cast the ballot, and they were declared elected.

Under new business, Dr. Dunkelberger reported a man who, in his estimation, was practicing veterinary medicine illegally. It was moved and carried that the man's case be thoroughly investigated and reported to the secretary by the complainant and the secretary instruct the secretary of the Examining Board thereupon.

A paper on "Pin Worms and Eczema" was read by Dr. Dunkelberger, this having been a recent case, and the peculiarity of the case was interesting reading.

Dr. Noack's paper upon "Some Effective Methods of Controlling Tuberculosis in Cattle" was well received. He referred to the Bang and Ostertag methods followed in various countries, Denmark being the first country to endeavor to control the disease with the Bang system, and succeeded fairly well, as that country is one of the most prosperous to-day—dairying being their chief industry. The Ostertag method, used in Germany and some other countries, by only removing advanced cases from a herd as they appear, does not prove effectual, as we can never eliminate and detect all the cases of a herd.

In the United States these various methods have also been tried. Massachusetts had for some time pursued the method inaugurated by Belgium in killing all reactors, until they were obliged to end with the slaughtering for want of funds to pay all such reactors, and the ravages of the disease would go on as before.

It was suggested that all reactors in a state, for instance, as they appear should be secured by the state and placed at various state institutions, which are receiving annual appropriations, and these cattle held under the Bang system, having them all strictly isolated from all other cattle, attendants and all pasteurizing the milk thus obtaining products in this manner, and these animals may safely be also bred.

These various methods were further discussed, with the conclusion that no satisfactory method had yet been attained in

eradicating successfully this great white plague; either methods propounded having advantages and disadvantages, though the Bang system sustains most supporters.

Dr. De Turk brought up the matter, whether no steps could be taken by this society to protect local veterinarians in applying the tuberculin test to shipped cattle by being encroached upon, the dealer usually employing the veterinarian that does the job at the lowest price and who is often underbidding the nearest qualified veterinarian to obtain the job After some discussion a motion was made and seconded that the secretary draw up resolutions relative to this cause and present a copy to the State Veterinarian for his deliberation, as follows:

Whereas, It has been found that local veterinarians sometimes are compelled on account of competition to test inter-state cattle under unsuitable conditions to please the dealer; therefore,

Be it resolved by this association, That the State Veterinarian divide the state into districts and that only the tests of the veterinarians appointed in these districts are recognized by the State Live Stock Sanitary Board. A motion was made to adjourn.

W. G. HUYETT, Secretary.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The fifteenth semi-annual meeting of this association was called to order in the "Ordinary" of the West Hotel, Minneapolis, at 10 o'clock a. m., Wednesday, July 10, by the secretary, word having been received that the president would be unable to attend.

Dr. B. Portor, of Albert Lea, was elected to fill the vacancy and presided over the sessions. The regular routine took up the time until twelve noon, when the meeting adjourned to meet at the Parke, Davis headquarters, First avenue North, Minneapolis, where the members sat down to a bountiful spread in the way of a Dutch lunch; and I want to say right here that I have been entertained at Dutch luncheons before, but never in the history of my experiences with these spreads has the society been so generously entertained at one of this kind as they were at this meeting by the managers of the Parke, Davis Company, and particularly the service given us by the young ladies of the company. The only thing that could have been added to make this

luncheon any more desirable perhaps, to some of the members who had partaken of this kind of a luncheon before, was the fact that the Dutch was omitted.

A three o'clock the party took cars at the West Hotel entrance for Excelsior Springs, where boats were in waiting for a ride on Lake Minnetonka; after three hours ride around the lakes, which could not have been more pleasant had it been ordered on purpose, the party landed at the head of the lake at Spring Park, where a banquet was served at the Hotel De Lotero.

Dr. Joseph Hughes, of Chicago, was the honored guest at this meeting. The party returned after the banquet to the city by the Great Northern, bringing the first day's session to a close.

On July 11th, at 10 a. m., session was called to order by Dr. B. Portor, time being limited, the regular routine of business was suspended, and the reading of papers was taken up.

Dr. Geo. Rennicks read an interesting paper on "State Practice Act." Dr. C. L. Seger read a paper on "Caesarian Operation (sow)." Dr. Francis Howard Punchard, A.M., M.D., P. H. D., New York City, read a very interesting and elaborate paper on "Phylacogens in Veterinary Practice," which was highly appreciated by members present.

Dr. C. Easton, St. Paul, secretary of the State Tuberculosis Association, gave a very interesting talk on "Tuberculosis and Legislation."

Dr. Hubert H. Fisher, Pittsburg, Pa., followed with a paper on "A General Survey of Biological Products," which was a very instructive paper.

Dr. Hughes was called upon and gave a very interesting talk on general subjects. About fifty members were present, and seven new names were added to the membership roll; the morning session adjourned at 1:30, and after luncheon the members were taken about the city of Minneapolis in automobiles out to the beautiful Minnehaha Falls and back to the West Hotel, after which the members all said good-bye once more and departed for their homes; all present agreeing that we had just enjoyed one of the most instructive and entertaining summer meetings that had ever been held in this state, and great credit is due along with a vote of thanks to the local committee having the entertainment in charge and those on the program who so generously gave of their time and knowledge to help to make this meeting a success.

G. Ed. Leech, Secretary.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of this association was held at the West End Hotel, Portland, July 10, 1912. Those answering roll call were: Drs. A. Joly, I. L. Salley, G. F. Wescott, C. H. McGillicuddy, H. L. Stevens, E. E. Russell, C. W. Watson, W. H. Lynch. The minutes of the previous meeting were read and approved.

A very interesting paper was read by Dr. W. H. Lynch; subject, "Epictetus, Ethics and Esthetics." Dr. Blakely, who was unable to be present on account of other engagements, sent a very able paper, which was read by the secretary. Subject was, "Ventral Hernia" in an eight-year-old mare, which was hooked by a cow in the groin on the median line, very close to the mammary gland, some two feet of the intestines protruding from the opening. This case responded to the doctor's treatment and made a successful recovery. This paper was followed by a long discussion by nearly all the members, each relating cases. Some had met with the same success as Dr. Blakely had; other cases that had received practically the same line of treatment were failures. This subject of ventral hernia also started a discussion on inguinal and umbilicle hernia.

New Business.—A Legislative Committee was appointed by the president to wait upon the Governor at our next Legislature, the two chosen being Dr. C. L. Blakely, of Augusta, and Dr. A. L. Murch, of Bangor.

Motion was made by Dr. H. L. Stevens that a vote of thanks be extended to those furnishing subjects for this clinic.

Next meeting to be held at Skowhegan, October, 1912. Papers to be read by Drs. Cleaves, Jerns, Jackson and Wescott.

Meeting adjourned at 11 p. m.

A two-days' clinic was held at Dr. Wescott's Hospital, July 10 and 11; a number of surgical operations were performed on horses, dogs, pigs and fowl by the different members of the organization. The president, Dr. G. F. Wescott, extended an invitation to Dr. W. H. Simpson, of Malden, Mass., to be present at this clinic, which was accepted. Dr. Simpson was the chief operating surgeon on the second day, performing some of the most difficult operations of major surgery known upon the equine.

There were three new graduates before the board of veterinary examiners. Charles L. Ryan, Henry B. Wescott and Norman J. Brown. They also made application for membership to the Maine Veterinary Medical Association.

C. W. WATSON, Secretary.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The twenty-third annual meeting of this society was held at Utica, N. Y., July 30 to August 1, 1912. About 80 members and visitors were present.

The meeting was called to order at 10 a. m., July 30, by the president, Dr. J. F. DeVine. The address of welcome was given by the Hon. J. H. Baker, mayor of Utica. This was responded to by Dr. V. A. Moore. The remainder of the morning was given to the routine business of the society and reports of various committees.

The afternoon was devoted to the address of the president and the following literary program: "My Experience of Twenty Years as Milk and Meat Inspector of Rome," Dr. Wilson Huff; "A Peculiar Case," Dr. W. B. Switzer; "The Use of Arecolene in Acute Pleurisy and Some Other Troubles," Dr. D. D. LeFevre.

In the evening Dr. V. A. Moore discussed the "Proposed Amendment to the Agricultural Law Relative to Tuberculosis."

SECOND DAY.

The program was continued as follows: "Two Rare and Interesting Cases," Dr. R. M. Weightman; "Complement Fixation in the Diagnosis of Glanders and Infectious Abortion," Drs. V. A. Moore and C. P. Fitch; "Investigations Concerning the Nature and Etiology of Swine Plague," Dr. W. L. Clark; "Autotherapy," Chas. H. Duncan, M. D.; "Verminous Arteritis in the Horse," Dr. S. H. Burnett.

During the evening Dr. W. L. Williams gave an illustrated lecture on "Sterility in Cows."

The third day was devoted to a clinic* at the hospital of Hollingworth and Young. This proved to be one of the most interesting and instructive days of the meeting. An abundance of material was at hand and an opportunity for all to see many interesting operations.

The society voted to hold the next meeting at New York during the same week as the A. V. M. A. The following officers were elected for the next year:

President—David W. Cochran.

Vice-President—W. B. Switzer.

Secretary-Treasurer—H. J. Milks.

H. J. MILKS, Secretary.

* Reported on page 708 of this issue of the REVIEW.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the above association and the State Board of Examiners was held in the city of Raleigh on June 25 and 26. Drs. Parker, Graves, Wood and Brown passed the examination successfully and were admitted to membership in the association.

A very interesting programme had been arranged by the secretary, and the local veterinarians and all present felt that a very profitable meeting had been held. Aside from the business and scientific discussions of the session, which in themselves deserve special mention, the visit to the Agricultural College and the plant of the State Department for the Production of Hog Cholera Serum were interesting features of the meeting. The banquet at the Yarborough Hotel was enjoyed by twenty-five veterinarians with Dr. Herring, the president, at the head of the table. Dr. Rankin of the State Board of Health delivered a strong address on the "Basis of Health Work."

Officers for the following year were elected as follows:

President—Dr. L. F. Koonce, Raleigh, N. C.

First Vice-President—Dr. J. P. Spoon, Burlington, N. C.

Second Vice-President—Dr. W. A. Hornaday, Burlington, N. C.

Secretary—Dr. M. J. Ragland, Salisbury, N. C.

Treasurer—Dr. T. N. Spencer, Concord, N. C.

M. J. RAGLAND, Secretary.

OLD AMES IN THE FRONT RANK.—Ames has always turned out from its veterinary, as well as other departments, men with the very best of qualifications, and the great state of Iowa has appreciated its work. Recently, as a material mark of appreciation of the work of the veterinary division, it has erected a $200,000 set of buildings in which to carry on the work of that school. It will be under such inspiring conditions that Dean Stange will begin his work this year. Prof. F. W. Beckman has furnished the REVIEW with an illustrated account of the new buildings, which will interest and inspire every veterinarian in America. It reached us too late for this number, but will appear in our next.

NEWS AND ITEMS.

Notes on A. V. M. A.

In the neighborhood of 270 new members were elected at the Indianapolis meeting.

Treasurer White's report shows a balance in bank of $3,207.09 at the opening of the 1912 meeting.

Association of Faculties and Examining Boards held two important sessions on Monday, August 25.

Telegram Received From Dr. Liautard.—Drs. Winchester and Dougherty appointed to send cable of acknowledgment.

Dr. J. W. Connaway stated in his paper on "Hog Cholera," that the Missouri Legislature in 1911 voted $25,000 for the manufacture and distribution of hog cholera serum.

At the Clinic.—Dr. John W. Adams operated on a sucking colt—doing the tenotomy to overcome "knuckling." The condition was an exaggerated one and the immediate results were remarkable.

Largest Clinic in the history of the association held on "Poges Run" (at Indian Veterinary College); fifty-six cases were operated upon during the three clinical sessions. A complete account of clinic will be published in our next issue.

President Brenton in his address paid a tribute to Secretary Marshall and to Chairman Hoskins of the Legislative Committee. He recommended an increase in the Secretary's salary, in keeping with the continued increase in membership and in the Secretary's duties.

Army Veterinary Bill Defeated.—While the Army Veterinary Bill had the full support of both houses, it, with a number of other bills acted upon the same day, were declared illegal because a quorum was not present. So that while the untiring and vigilant work of Chairman Hoskins of the Committee on Legislation is not lost, the measure is defeated for this session. We say the work is not lost, because Dr. Hoskins has conducted a campaign of education that will not be soon forgotten by the legislative bodies with whom he labored, nor by the War Department.

OFFICERS FOR 1912.—President, John R. Mohler.

Vice-Presidents, Geo. H. Roberts, John W. Adams, H. Jensen, Chas. E. Cotton, V. A. Moore.

Secretary, C. J. Marshall.

Treasurer, Geo. R. White.

Librarian, Samuel H. Burnett.

IN DR. C. D. MCGILVRAY'S PAPER ON "HOG CHOLERA IN MANITOBA," he brought out the fact that in districts where hogs were fed on clean wholesome food, grain, etc., and live in the open fields, no hog cholera existed, and that where they were fed on uncooked garbage from kitchens and hotels, hog cholera soon made its appearance. Also that where pigs so fed were brought into the clean herds, hog cholera often soon manifested itself.

FROM Secretary Marshall's report it was shown before the election of new members that there were 1,356 active and 52 honorary members in the A. V. M. A. Of these Pennsylvania has the largest number, California second and Illinois third. Ohio and Indiana have the largest number of applicants for membership this year, which is an indication of one of the benefits that the meeting of the A. V. M. A. confers upon a locality in which it convenes.

THE FOLLOWING GENTLEMEN WERE GUESTS OF DR. GEO. H. ROBERTS at the Columbia Club on the evening of August 25, when a splendid dinner was enjoyed on the roof garden of the club building: Drs. Brenton, Dalrymple, Ellis, Glover, Hoskins, Jensen, Lyman, Marshall, Mohler, Moore, Rodgers, Rutherford, Sheppard, Stewart, White and Williams. A good view of the solders' monument and electric fountain at its base was had from the club house, and a splendid view of the city from the roof, and all felt very much indebted to Dr. Roberts for this kind and thoughtful courtesy.

THE BANQUET was one of the most successful and enjoyable that has been held for some time. More than two hundred and fifty sat at the festive board, and, after partaking of a most excellent repast, centered their attention on Dr. John W. Adams, of Philadelphia, who filled the position of toastmaster as only Adams can. Many members were called upon, and finally Dr. Rutherford made the address of the evening. It was not a usual speech, even from Rutherford, but a most unusual one, on our relations with Canada, that will give us all food for thought.

Other thoughts that forced themselves upon the members as they sat in the beautiful, spacious dining hall, were the hospitality of the Indiana veterinarians, and their untiring efforts to make their guests feel comfortable and at home. Pleasant indeed are the associations they carry with them to their homes. of their visit to the Hoosier state.

IN DR. MOHLER'S REPORT ON DISEASES he showed that foot and mouth disease is prevalent in Europe at the present time. Among other places it is in Ireland, where it has not been for 29 years. Owing to the fact of its prevalence abroad and its ready communicability, Dr. Mohler recommends a sharp lookout against another visitation from it in this country. *Dourine* is spreading throughout the United States.

Infectious abortion has made its appearance in nearly all parts of our country and is a great menace to the cattle raising interest—in that respect it is second in importance only to tuberculosis. In regard to *glanders* the doctor stated that the combination of the complement fixation and agglutination tests is the most accurate laboratory method of diagnosing glanders at our command at the present time—98 per cent. of accuracy. The ophthalmic test for glanders is the official test of Austria. The test solution is applied to the conjunctiva of one eye with a soft camel's hair brush, the other eye being used for a check. The reaction is prompt, and this test has been found to be superior to the subcutaneous injection of mallein.

Malta fever, or slow typhoid, is found among the stock in Texas—has existed there in fact for 25 years.

Speaking of *tetanus*, Dr. Mohler spoke of the dependable immunizing agent the veterinary profession has in tetanus antitoxin, and expressed regret that it was not more generally taken advantage of in that capacity. The doctor stated that from experiments made as to the minimum dose that will render a subject immune, it has been determined that 500 units is sufficient. In cases where 400 and 250 units had been used, the animals developed symptoms, but subsequently recovered, but that 500 units, one-third of the quantity now used, is sufficient to render an animal immune, if given within four days after infection, in the experimental cases.

DR. SALMON'S ILLUSTRATED LECTURE on Uruguay on Monday evening, August 25th, at the Claypool Hotel was extremely interesting. After throwing upon the screen a map of the western hemisphere, showing the relative location of Uruguay to the

United States, to Africa and to Spain, the doctor proceeded to give a history of the country, its early settlement, etc., showing views of its people, buildings, cattle, sheep and other animals. Dr. Salmon stated that this little country has eight million cattle and twenty-six million sheep. The Herefords are the most popular breed of cattle; the shorthorns are also quite prevalent. Tick fever exists in one part of the country. The doctor showed a line dividing the part of the country infected, and that which is not. A picture of four yokes of oxen attached to a two-wheel cart, carrying heavy bales of wool, was shown. He showed orange and lemon trees, which ripen their fruit on the trees in midwinter. Palm trees, which grow everywhere in the open ground, give the country that tropical beauty that cannot be reproduced outside of a tropical country. One of the principal productions of the country is wool, which might be inferred from the great number of sheep referred to. Ninety million pounds is annually exported. The country was colonized by Spaniards in 1624. A picture of an immense cactus was thrown on the screen, which, judging from the relative height of the man that stood at its base, might reach a height of twenty to twenty-five feet and be fifty feet in circumference. Beautiful lakes, gardens, bathing beaches, etc., were shown in and around Montevideo; also the principal streets and buildings of that city, including the new veterinary buildings in course of construction, for which the government appropriated $500,000, and $73,000 for the maintenance of the school. Finally a throng of pleasure-seekers at one of the beaches or other resorts was shown, which gave evidence, that for style and quality of dress, they are not behind people of the United States. The women of the country are very beautiful. Those who were so fortunate as to be present at Dr. Salmon's lecture feel under great obligations to him, and will always retain a pleasant recollection of the event.

THE OLD ORIGINAL CONKEY CASTING HARNESS, used by L. L. Conkey for twenty-seven years in casting horses for a variety of operations, was used by Dr. George R. White to throw a horse upon which he afterward operated at the Indianapolis meeting.

THE DUTCH LUNCH on Wednesday evening, August 28, was a welcome and fitting finish to the evening after the election of officers to the A. V. M. A. for the coming year. Always more or less strenuous, this year it was especially so, due to the large number of votes cast, and the great number of nominees, es-

pecially for the vice-presidency. The lunch was set down for 9 p. m., but it was after 11 before the work of electing officers had been completed. But it was all the more enjoyable when it was reached, and the vaudeville, held in the beautiful open garden beside the German House, following the luncheon, did much to relax and rest the members, and was a happy termination to a strenuous day.

Resolutions Adopted at Indianapolis.

Recent changes in State Boards, in some of our states, strongly indicate the dangers that confront our profession in either advancing or maintaining fairly high standards already established. We, therefore, recommend: That the Committee on Legislation will continue their consideration and efforts to establish a federal licensing system in the United States.

Whereas, Hog cholera has become very prevalent throughout the United States and Canada, and

Whereas, Much difference of opinion prevails among those who are endeavoring to prevent its spread and to eradicate the disease; be it

Resolved, That the Committee on Diseases collect and prepare scientific and practical data on the control of hog cholera to be submitted at our next meeting.

Whereas, The veterinary instruction given in agricultural colleges to students pursuing the four-year agriculture courses varies materially in the several agricultural colleges, and

Whereas, Graduates of agricultural colleges may receive one-year time credit in veterinary colleges, accredited by this association, providing said graduates in agriculture have had sufficient veterinary science; be it

Resolved, That the president appoint a committee of three to outline such sufficient veterinary science, and to recommend to agricultural colleges the extent and scope of veterinary science which this association believes should be included in such agricultural courses.

Local Committee.

Resolved, That we highly commend the local committee for the very excellent arrangements provided for this meeting, and especially for the extent and quality of clinics. And that we hereby tender them the thanks of the Association for their generous entertainment.

To Retiring Officers.

Resolved, That we sincerely thank the retiring officers and committees for their excellent and painstaking efforts in the administration of their various duties.

Notes on the New York State Meeting at Utica.

Eighty members registered at the Utica meeting of the New York State Veterinary Society.

The New York State Veterinary Medical Society seems to have unconsciously fallen into the practice of the Grand Army of the Republic of that state, *i. e.*, alternating its election of a president, up-state-man one year and one from the metropolitan district the next. Dr. David W. Cochran, a veteran practitioner of New York City, was honored with the office at the recent meeting in Utica.

Aside from those from the practice, Drs. Hollingworth and Young, Utica, subjects were sent in to the clinic from Clinton, Rome, Deansboro, Waterville and Little Falls.

Some of the Visitors to the New York State Veterinary Medical Society: Charles H. Duncan, M. D., New York City; Drs. Johns, Spence and Ford, pathologists; Dr. Bernstein, director and custodian of the state asylum, and Dr. Rogers (chemist), director of Pratt Institute, Brooklyn, N. Y.; Veterinarians Charles Perry, Worcester, Mass.; F. J. De Land, Fair Haven, Vt.; Benjamin D. Peirce, Springfield, Mass., and H. F. Palmer, Philadelphia, Pa.

President John F. De Vine, in his address before the society, spoke of the present bright outlook for the properly educated and trained veterinarian and, while he stands for higher education, as he has always done, and would not favor a reduction in the requirements for entrance into veterinary schools in New York state, neither would he under any condition sanction an advancement of the same. In this respect he said: "While it is absolutely essential to have a reasonably safe framework on which to build, it is possible to overdo the education question for practical purposes; a feeling too easily acquired by those living in a university atmosphere." He also dwelt at some length upon education and its practical application, in which he expressed some hard facts about "kid glove" veterinarians and their lack of ability as practitioners.

G. Ed. Leech "in Dutch."—Two features of the Minnesota mid-summer meeting seem to have made a deep impression on Secretary Leech *i.e.*, the young ladies who served the Parke, Davis luncheon and the absence of the "Dutch" from same. After all, specimens of the *genus homo* are much alike.

Missouri State Veterinary Association held one of the most successful meetings, at Marshall, it has enjoyed for some time. Fifty members were present, and forty new names were enrolled on the membership list. Some excellent papers were presented and discussed; immunity against hog cholera was given considerable attention. It was voted at the business meeting to publish the proceedings, and Dr. S. Stewart was selected to edit same.

The Pennsylvania State Veterinary Medical Association will hold its next meeting at Harvey's Lake, Wilkes Barre, at Hotel Oneonta, September 17, 1912. It promises to be largely a sociable function, and time of recreation, before settling down to the many arduous duties that come with the autumn and winter.

Veterinarians and Wives Have Basket Picnic.—The veterinarians and their wives to the number of about fifteen met at Lakewood on shores of Wall Lake, Iowa, July 28. All had a splendid time boat-riding, bathing and eating such basket lunches as only a veterinarian's wife knows how to prepare. The occasion was so pleasant that it was agreed to meet again September 8, when, if the weather is good, a large attendance is looked for.

Veterinarian in New Line of Sanitary Work.—Dr. Cassius Way, Harvard, Ill., has severed his connection with the Borden's Condensed Milk Co., to take up a line of sanitary work with Hunt, Helm, Ferris & Co., in connection with their Barn Equipment and Sales Department. This concern, facing a constant demand for scientific and practical advice to farmers, decided that a veterinarian was the man best qualified to meet those requirements. We are sure that they have been fortunate in securing Dr. Way for this position, and that their patrons, the dairymen, will also profit by it, in getting good, sound, scientific and practical advice along the various lines of dairy husbandry.

INSPECTOR'S ASSISTANT (MALE), B. A. I.—DEPT. AGR.

The United States Civil Service Commission announces an examination on October 9, 1912, to secure eligibles from which to make certification to fill vacancies as they may occur in the position of inspector's assistant (male), at $840 per annum, in the Bureau of Animal Industry, Department of Agriculture, unless it is found to be in the interest of the service to fill such vacancies by reinstatement, transfer, or promotion.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

Applicants should at once apply to the United States Civil Service Commission, Washington, D. C.

HORSE SHOWS.

Canadian National Exhibition, Toronto, Can., Aug. 24-Sept. 9.
Newport, R. I., Sept. 2-4.
Orangeburg, N. Y., Sept. 4 and 5.
Hartford, Conn., Sept. 4-6.
Lake Forest, Ill., Sept. 7.
Syracuse, N. Y., Sept. 9-14.
Wilmington, Del., Sept. 10-12.
Ogdensburg, N. Y., Sept. 16-20.
Detroit, Sept. 16-20.
Rochester, N. Y., Sept. 17-19.
White Plains, Sept. 18-23.
St. Joseph, Mo., Sept. 23-28.
Bryn Mawr, Sept. 25-28.
Mineola, Sept. 26-28.
Spokane, Wash., Sept. 30-Oct. 6.
Brockton, Oct. 1-4.
Piping Lock, Locust Valley, L. I., Oct. 4, 5.
Montclair, N. J., Oct. 5.
Dallas, Tex., Oct. 12-27 (Race Meet).
Hagerstown, Oct. 12-18.
Morristown, Sept. 26-28.
Locust Valley, Oct. 4, 5.
Danbury, Conn., Oct. 9.
St. Louis, Mo., Oct. 21-26.
National, New York, Nov. 16-23.
Chicago, Dec. 2-7.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary
Alabama Veterinary Med. Ass'n..	August, 1913	Auburn.....	C. A. Cary, Auburn.
Alumni Ass'n, N. Y.-A. V. C.....	....	141 W. 54th St.	J. F. Carey, East Orange. N.J.
American V. M. Ass'n.....	Week Aug. 26,'12	Indianapolis..	C. J. Marshall, Philadelphia.
Arkansas Veterinary Ass'n.....	.....	.....	J. B. Arthur, Russellville.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., So. Omaha ..	3d Mon. ea. mo.	S. Omaha, Neb	E. J. Jackson, So. Omaha.
California State V. M. Ass'n.....	Sept. 11, 1912....	Fresno	John F. McKenna, Fresno.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n....	June and Nov...	Syracuse.	W. B. Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. ea. mo	Chicago	D. M. Campbell Chicago.
Colorado State V. M. Ass'n.....	Jan., 1913	Denver	B. F. Kaupp, Ft. Collins.
Connecticut V. M. Ass'n.....	Feb. 6, 1912.....	Hartford	B. K. Dow, Willimantic.
Delaware State Vet. Society.....	Jan. Apl. Jy. Oct.	Wilmington ..	A. S. Houchin, Newark, Del.
Essex Co. (N. J.) V. M. A.....	3d Mon. ea. mo.	Newark, N. J.	J. F. Carey, East Orange, N.J.
Genesee Valley V. M. Ass'n.....	.....	.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	.....	Atlanta.....	P. F. Bahnsen, Americus.
V. M. A. of Geo. Wash. Un'y.....	2d Sat. ea. mo..	Wash., D. C..	A. T. Ayers.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Idaho Ass'n of Vet. Graduates....	.....	Boise.....	G. E. Noble, Boise.
Illinois State V. M. Ass'n.....	July 9. 1912. ...	Springfield ...	L. A. Merillat, Chicago.
Indiana Veterinary Association...	Jan. 15-16, 1913..	Indianapolis ..	A. F. Nelson, Lebanon.
Iowa Veterinary Ass'n.....	.....	.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n...	January, 1913...	Topeka.	J. H. Burt, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb. ea. yr.	Lexington	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	.....	.....	E. H. Yunker, Phila.
Lake Erie V M. Association.....	Oct 8-12, 1912...	Lorain, O.....	Phil. H. Fulstow, Norwalk, O.
Louisiana State V. M. Ass'n.....	.....	.. ..	E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n	October, 1912....	Skowhegan....	C. W. Watson, Brunswick.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	4th Wed. ea. mo.	Young's Bost'n	J. H. Seale, Salem.
Michigan State V. M. Ass'n.....	Feb. 6-8, 1912...	Mich. Agr. Col.	Judson Black, Richmond.
Minnesota State V. M. Ass'n.....	July 10-11, 1912.	Minneapolis...	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n....	.....	.....	Wm. P. Ferguson, Grenada.
Missouri Valley V. Ass'n.....	.....	.....	Hal. C. Simpson, Denison, Ia.
Missouri Vet. Med. Ass'n	July 29-30, 1912..	Marshall	S. Stewart, Kansas City.
Montana State V. M. A.....	Jan. 29-30, 1912.	Bozeman	A. D. Knowles, Livingston.
Nebraska V. M. Ass'n.....	January, 1912....	Lincoln.....	W. H. Tuck, Weeping Water.
New York S. V. M. Soc'y.....	Jy. 30-31, Aug. 1.	Utica.....	H. J. Milks, Ithaca, N. Y.
North Carolina V. M. Ass'n.....	June, 1913.....	Salisbury.. ...	M. J. Ragland, Salisbury.
North Dakota V. M. Ass'n.....	Fair Week, 1912.	Fargo.....	C. H. Babcock, New Rockford.
North-Western Ohio V. M. A.....	Feb and Nov...	Lima.	A. J. Kline, Wauseon.
Ohio State V. M. Ass'n.....	.....	.....	Reuben Hilty, Toledo.
Ohio Soc. of Comparative Med..	Annually	Up'r Sandusky	F. F. Sheets, Van Wert, Ohio.
Ohio Valley Vet. Med. Ass'n.....	.....	.....	J. C. Howard, Sullivan.
Oklahoma V. M. Ass'n.....	Dec. 14-15, 1911.	Okla. City....	C. E. Steel, Oklahoma City.
Ontario Vet. Ass'n.....	April, 1912.....	Toronto	C. H. Sweetapple, Toronto.
Pennsylvania State V. M. A.....	Sept. 17, 1912....	Wilkesbarre...	John Reichel, Glenolden.
Philippine V. M. A.....	Call of President	Manila.....	David C. Kretzer, Manila.
Portland Vet. Med. Ass'n.....	4th Tues. ea. mo.	Portland, Ore.	Sam. B. Foster, Portland, Ore
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	J. S. Pollard, Providence
South Carolina Ass'n of Veter'ns	.....	.....	Clarence E. Smith, Greenville
So. Illinois V. M. and Surg. A....	Jan. 2-3, 1912...	Centralia	F. Hockman, Louisville.
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo
Schuylkill Valley V. M. A.....	Dec. 18, 1912....	Reading ...	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	.....	Philadelphia..	B. T. Woodward, Wash'n, D.C
South Dakota V. M. A.....	2d Tues. July '12	Aberdeen.....	S. W. Allen, Watertown.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Dell, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp..	4th Tues. ea. mo.	407 Ill. Ave....	H. R. Collins, So. St. Joseph.
Tennessee Vet. Med. Ass'n.....	.....	.....	A. C. Topmiller, Murfreesboro
Texas V. M. Ass'n.....	Mar. 18 19, 1912..	Fort Worth...	R. P. Marsteller, College Sta
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Utah Vet. Med. Ass'n.....	Mar., 1912	Logan	A. J. Webb, Layton.
Vermont Vet. Med. Ass'n	.....	....	G. T. Stevenson, Burlington.
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, For.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo..	514—9th St., N. W.....	Saskatchewan, Alta., Can. M. Page Smith, Wash., D.C.
Vet. Ass'n of Manitoba.....	Midsummer Fair	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....	Jan., 1913	Jer-ey City...	E. L. Loblein, New Brunswick.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	R. S. MacKellar, N. Y. City.
Veterinary Practitioners' Club....	Monthly.....	Jersey City ...	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n	July 11, 1912....	Newport News	Geo. C. Faville, Norfolk.
Washington State Col. V. M. A ..	1st & 3d Fri. Eve.	Pullman.....	R. J. Donohue, Pullman.
Washington State V. M. A.....	Jan. 9-10, 1913...	Wenatchee....	Carl Cozier, Bellingham
Western Penn. V. M. Ass'n.....	3d Thurs. ea. mo.	Pittsburgh....	Benjamin Gunner, Sewickley
Wisconsin Soc. Vet. Grad	July, 1912.....	Janesville.....	J. P. West, Madison.
York Co. (Pa.) V. M. A...	June 4, 1912.....	York.....	E. S. Bausticker, York, Pa.

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